Low Carbon Energy Market Survey

Quantum Strategy & Technology

Summary Report for:
Electricity Northwest

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1 Introduction

1.1 Objectives and Scope

This independent survey was undertaken as part of a wider project for Electricity North West (ENW) to evaluate the business opportunities associated with the move towards a low carbon economy in the North West of England. In particular the survey has addressed the following questions:

- What are the main drivers for low/zero carbon developments e.g. building regulations, regional/local climate change strategies/plans, planning requirements, corporate environmental/social responsibility policies?
- How will those involved in new developments respond to these drivers in terms of implementing low/zero carbon solutions e.g. through energy efficiency, micro-generation, larger scale renewables, combined heat-and-power, energy-from-waste, district heating etc?
- What will be the rate of implementation of these solutions over the next 5 to 7 years and how will these be clustered geographically?
- What are the barriers to the implementation of low/zero carbon solutions especially the distributed generation and renewable energy options?
- How can the ENW facilitate the investment in low/zero carbon developments and what additional/new services could be provided?

The survey focused on new build and major refurbishments in both the public and private sectors including large scale retrofitting of micro-generation technologies.

1.2 Survey Programme

Our programme of work consisted of the following activities:

- Compiling a sample of organisations in the North West to interview. The aim was to achieve broad coverage of the wide range of organisations involved in low carbon developments rather than a detailed survey of specific groups. The following categories were included:
    - Regional bodies;
    - Local authorities;
    - Regeneration companies;
    - Housing associations;
    - Heath care trusts and hospitals;
    - Property developers and builders;
    - Renewable energy suppliers and installers;
    - Energy suppliers;
    - Contractors, consultants and energy service companies;
    - R&D organisations.
- Designing an interview guide to cover the questions to be covered during the survey (see Appendix 1);

- Undertaking the programme of interviews through a combination of face-to-face meetings and telephone interviews. A total of 45 organisations were interviewed (see Appendix 2 for the list of participating organisations);

- Analysing the results of the interviews and preparing a report of the results.

2 Interview Programme

2.1 Low Carbon Developments

The majority of low carbon developments have been, or are being planned, in the public sector particularly in the following areas:

- **Social housing** especially in the Housing Market Renewal and regeneration areas (see below). Some housing associations are active in this area, in both refurbishment of existing properties and new build developments.

- **Health care**: Hospitals that have already implemented energy efficiency improvements are now considering renewable energy for new buildings and retrofit. CHP and biomass boilers are being considered where there is a need to replace old boilers (e.g. Stepping Hill and Blackpool).

- **Education:** The Building Schools for the Future programme is influencing new schools and refurbishment projects. For example, Blackpool Council is hoping to incorporate renewable energy on both new and refurbished schools and Oldham has two schools operating biomass boilers under a PFI contract. Universities and FE colleges are also active in planning and implementing low carbon developments such as the Alan Turing Building at Manchester University and the Mancat building.

- **Council buildings**: Renewable energy has been installed on sites including swimming pools and town halls as a way of demonstrating technologies and leading by example – see example in the Table in the Appendix.

- **Major regeneration sites**: Some of the major sites in the NW are actively involved in low carbon developments e.g. New East Manchester and Bickershaw Colliery in Wigan which is an English Partnerships Carbon Challenge site (650 zero carbon homes and a low carbon industrial estate). More details of those which are considering significant low carbon investments including energy and heat networks are provided in section 4.

The private sector has made less progress than the public sector in implementing low carbon developments although there are some notable exceptions to this such as the Co-op, Peel Holdings and other large firms which have strong corporate responsibility programmes. One major supermarket chain is pursuing wind and biomass CHP as key technologies and they have tested a range of technologies in their environmental test-bed stores and are including the most effective (in terms of both energy generation and cost) in their new store template.

Some house builders are starting to use renewable energy in their private sector developments but the scale is much lower than work they are doing in social housing. For example, one major house builder is including PV on a large scale social housing project in Manchester but has just a few trial plots using PV and solar thermal in a major private development in Warrington.

Low carbon technology suppliers report significant growth in enquiries and projects especially from the public sector for work in urban regeneration areas, hospitals and universities. Some are also experiencing increases in business as energy prices have risen and as developers have been forced to look at renewable energy options. One supplier of

CHP/heat networks noted that its work in the past had been mostly with the public sector, but that this is changing as more developers are looking at options for zero carbon developments. The major growth area for most of these firms has been London due to the policies of the previous major and the establishment of the London Climate Change Agency and the London ESCO. They are anticipating similar approaches to be adopted by other large cities such as Manchester.

In Wales, the devolution of the Building Regulations is being used to ensure that all new buildings in Wales are built to the highest possible low carbon standards, both in respect of energy efficiency and renewable energy. These higher standards are aimed at delivering the aspiration that all new buildings should be zero carbon by 2011 and, over the next 3 years, the Welsh Assembly Government will be looking to demonstrate a path to zero carbon buildings through the construction work it funds and/or takes place on its land.

An example of the Assembly Government taking the initiative in the drive to zero carbon buildings is the current work on major regeneration projects in Wales. The aim is to maximize carbon savings by going well beyond Building Regulations and moving towards the zero carbon targets. This will be achieved by developing sustainable energy strategies for each site which will form part of the planning consent process and will be used to encourage developers to adopt the low/zero carbon standards for all types of buildings. An early example of this is the Ebbw Vale Steelworks site which is a mixed use development comprising residential, hospital, learning campus, commercial, theatre, leisure centre, and primary school buildings together with landscaping works and a railway terminus. A Sustainable Energy Strategy for the site proposes a 60% carbon reduction target against a 2006 'business as usual' baseline based on Part L of the Building Regulations. This includes plans for a community energy/heating network based on biomass CHP.

2.2 Drivers

The main general drivers for incorporating low carbon technologies into new developments were identified as follows:

- Planning requirements including PPS1/PPS22 and renewable energy targets in SPDs and LDFs. Local Authorities differ in their policies on renewable energy, ranging from having no formal requirements to requiring 20% renewable energy (e.g. Manchester). Oldham's SPD requires an energy statement to be submitted along with the planning application for any new development. It should be noted however that a few respondents reported that some of the NW local authority targets are negotiable and contrasted the North West with London where it is said that they are more stringently enforced. Many of the local authorities without planning requirements for renewable energy are expecting to introduce these in the next few years.

- The Code for Sustainable Homes (CSH) is a major driver for Housing Associations and others e.g. English Partnerships and Manchester City Council. The Housing Corporation, who fund and regulate the Housing Associations, has set CSH level 3 as the current minimum standard. Some interviewees stated that renewable energy is required to meet this standard whilst others thought that it could be achieved through energy efficiency measures.

- BREEAM (very good/excellent), developers felt that this was a significant driver for commercial buildings. It is included in some Local Authorities planning requirements and is also seen as a good marketing tool.

- The Energy Performance of Buildings Directive (EPBD), the introduction of Energy Certificates for buildings and more stringent Building Regulations were also considered to be important drivers for low carbon developments.

- High fossil fuel price has become a major driver to stimulate energy efficiency and investment in renewable energy. Continued uncertainty about energy price rises is also driving companies to consider installing renewable energy technologies because they want to "take control over future costs".

- Fuel poverty is an important driver in the social housing sector for both new build and retrofit of renewable energy.

- The financial mechanisms to stimulate investment in renewable energy especially ROCS and grants for micro-generation although the stop-start nature of the latter has not helped to build confidence and consistent demand.

- Corporate responsibility (CR) policies particularly in large firms have driven them to look at ways to reduce their carbon footprints as identified in section 3.2. One renewable energy installer is receiving more enquiries from large house builders with CR policies/statements. It is also anticipated that large firms will start to put pressure on their suppliers to reduce their carbon footprints so as to achieve carbon reductions throughout the whole supply chain.

- Waste diversion targets are stimulating investment in a variety of waste treatment technologies including energy-from-waste.

Some drivers apply to specific sectors/areas, for example:

- Heath Care: all the hospitals interviewed claimed that the mandatory NHS targets were their main driver (15% emissions reductions by 2010, 20% by 2012).

- Building Schools for the Future and the additional funding for renewable energy technologies.

- English Partnerships (EP) is working three years in advance of CSH; they are currently specifying CSH level 3 and are aiming for developments to be zero carbon by 2013.

- AGMA is currently developing a proposal to draw up a city-wide map of energy demand and link this to potential opportunity sites for local energy networks - heat and electricity. Bury MBC is working on a brief with AGMA to work out what PPS1 means for Greater Manchester (GM) and expect to define renewable energy targets for the whole of GM by end 2008.

- NWDA: all new developments with NWDA involvement will need to meet requirements of the Sustainability Standard. Renewable energy is expected to be a minor component until 2014 when developments will need to achieve 44% CO_2 reduction. The NWDA are also planning to require a standard for Single Finance Initiative sites, there will be a funding stream to support their improved carbon performance. A planned Biomass CHP Programme could support five major heat network schemes.

Many of the above drivers apply only to new developments and major refurbishment projects. There are fewer drivers to stimulate the retrofit of renewable energy and CHP, the most important ones in this respect are:

- High fossil fuel energy prices;
- The increasing levels of fuel poverty which are linked to the above;
- Climate Change Levy Agreements and the EU ETS for large industrial energy users;
- The Carbon Reduction Commitment which will affect large commercial and public sector energy users;
- CR policies and related supply chain pressures.

2.3 Low Carbon Options

The interview results are covered below under the various low carbon energy technologies.

2.3.1 Low Carbon Buildings and Microgeneration

It was agreed by the majority of those interviewed that the major focus over the next 2 to 3 years will continue to be energy efficiency and that there is a lack of a strong market pull for a big move towards renewable energy. However beyond this, there is likely to be increasing emphasis on microgeneration as renewable energy targets and policies such as CSH start to bite.

The main renewable energy technologies currently being installed are:

- Solar water heating
- PV
- Ground source heat pumps (GSHPs)

PV and solar hot water are popular options with construction companies and developers. Private developers preferred these options as the building design is not affected and they are relatively easy to install, whilst Housing Associations need to choose the low cost, low maintenance options. Some construction companies had also investigated GSHP and Air Source Heat Pumps (ASHPs) but these projects had not gone ahead because of space and installation problems. English Partnerships has six homes in Northampton which have GSHPs and they are waiting for their accreditation as CSH level 6. The NWDA and some of the energy consultants believe that PV will be the most common technology in the longer term. Although it is currently expensive, costs and efficiencies are expected to improve as technology improvements are introduced and manufacturing volumes increase.

There was limited interest shown in micro-wind due to concerns about reliability and maintenance problems and wind profiles in urban areas. It was thought however that new designs and improved integration of the turbines within the built environment (e.g. by designing the roof to boost wind speeds) could help to expand the market.

There was little knowledge or experience of domestic CHP (dCHP) amongst those interviewed. It was felt by some developers and local authorities that it would be more cost-effective to install larger CHP/heating schemes to serve a number of buildings than to go for individual units.

2.3.2 Onshore Wind

It is recognised by many of the respondents that onshore (and offshore) wind will continue to be the leading renewable energy technology in the UK for the next few years. This is reinforced by a recent project on areas for renewable energy developments[1] for the North West Regional Assembly (now 4NW) and the ENW's own forecasts.

However, there are significant barriers to the development of onshore wind especially large-scale wind farm developments. One interviewee commented that the "market will be tough over the next 3 to 5 years….opposition is well organised". Wind turbine installers noted that the timescales and costs to get projects approved and completed can jeopardise the projects.

Respondents are more optimistic about the prospects for smaller wind farms and stand-alone turbines especially community or cooperative owned developments. It was thought that there is significant potential on brownfield and industrial sites. Some local authorities are also expecting more sites with wind turbines. This trend is supported by the current lack of availability of some sizes of turbines because of demand levels, especially those in the 500kW to 1MW range.

It should be pointed out that this study has focussed on low carbon technologies associated with new developments and those that are connected to the distribution network. Hence, we did not cover the offshore wind sector and the main emphasis was on small to medium scale onshore wind generation rather than large onshore wind farms.

2.3.3 Biomass Heating and CHP

Installation of biomass heating or CHP in the Northwest has been slow compared with other parts of the UK e.g. Wales and Yorkshire. There are concerns especially about fuel supplies, storage and the logistics of deliveries. Concerns about biomass mean that it has not yet become a common technology. For example, one local authority investigated the potential for biomass but there were not enough local sources of wood and a large retailer stopped two schemes partly because of worries about the quality of biomass material. One of the energy service companies (ESCOs) interviewed said that they would only consider biomass if it was specifically requested by the client.

Nevertheless, there is strong interest in biomass particularly from the public sector e.g. for schools, health care and community heating. In urban areas, there is a large availability of wood waste which could provide a local fuel source and in rural areas there is potential for wood from managed woodlands and energy crops. The NWDA is considering a programme to stimulate biomass supply chains and demand and Cumbria Vision has identified biomass as a key growth technology for the local economy. There is also potential for biomass process heating in industries such as chemicals, paper & board, wood processing and food & drink.

2.3.4 CHP and District Heating/Cooling

Suppliers of CHP and district heating/cooling schemes report significant growth in the UK market especially in London. This is reinforced by one of the leading ESCOs which has recently acquired a CHP technology supplier. The market is being driven by improvements in the 'spark spread' which has increased the return-on-investment for CHP and by public

[1] Towards Broad Areas for Renewable Energy Developments: July 2008

sector policies and plans for low carbon developments. One of the suppliers stated that they had seen growing interest from the private sector (e.g. for housing developments) but that this was slowing down due to the credit crunch. This company also said that they are "more likely to export electricity from the CHP plant if it is biomass fuelled due to ROCs".

There is strong interest in the NW from some local authorities in CHP and district heating – one of the drivers being that heat planning is required as part of LDF energy policies under PPS 1. There is also interest in developing/up-grading existing heat networks in Greater Manchester and in networks associated with new developments (e.g. in the Housing Market Renewal areas). A key issue in this context is that of financing and owning the networks. This is usually contracted out to an ESCO but there are concerns about creating a "monopoly" which may work against the end-users.

CHP is a popular option when replacing old boilers in hospitals. CHP schemes and biomass boilers have been installed, or are planned for several hospitals in the region. CHP is also being used in housing developments, for example, the English Partnership's Carbon Challenge site in Bristol has biomass CHP.

2.3.5 Energy-from-Waste

A recent study on energy-from-waste (EfW) for Envirolink Northwest concludes that there is already sufficient capacity in the pipeline to treat the residual MSW arisings up to 2020 but there will not be enough capacity to treat the residual C&I waste which will amount to 2 to 3 million tonnes per annum depending on assumptions on recycling and composting rates.

The options for energy recovery from the C&I waste stream include a small number of large integrated plants or a large number of smaller, local facilities with CHP (10 to 15MW) to treat waste streams from individual companies or groups of companies.

2.3.6 Low Head Hydro

Some of the local authorities in Manchester (e.g. Oldham and Tameside) are involved in small scale hydro schemes such as the project at New Mills with the Co-op. Peel Holdings is involved in the scheme at Barton Locks and there is interest in developing projects in Cumbria. The Joule Centre has funded a project led by Lancaster University to identify the potential for small scale hydro in the region. Overall most respondents thought that it is unlikely that this technology will be a significant contributor to DG capacity in the region. This is confirmed by the Arup projections and ENW forecasts.

2.3.7 Wave and Tidal

There is considerable tidal power potential in the NW especially for tidal barrages on the Mersey and at Morecambe Bay and work is in progress to develop proposals for major projects in these areas. The Joule Centre has funded a project led by Liverpool University to investigate the tidal power potential in the region.

The generation potential of these schemes could be significant but it seems unlikely that they will go ahead in the foreseeable future due to the large investment involved and environmental concerns.

2.4 Barriers to Investment in Low Carbon Tecnologies

Cost was a common barrier across all the sectors interviewed, especially for builders and developers, housing associations and health care organisations. According to one construction firm, the biggest problem is that clients are generally unwilling to budget for renewable energy, especially if there is a long payback period. In another example, a further education college started by specifying a "zero carbon" building with BREEAM excellent but by the end of the design, tendering and contract negotiation process they reduced this to "what can we do as a minimum to meet Building Regulations" due mainly to cost considerations.

Another common barrier is resistance to change and the conservative nature of the construction industry. Developers and builders want to be able to "build and leave" and perceive that low carbon technologies will create both installation and maintenance problems.

One builder summed up the barriers with the following statement:

1) Suitability of the site – i.e. some sites do not have the desired wind strength and also the size of the turbine may not get planning permission or else local residents might lodge complaints against such a structure.

2) Client requirements/budget – sometimes the client is dead set against it. Sometimes they are not prepared to budget for it- this is the most common barrier in my opinion.

3) Pay back time – linked in with the above really – convincing clients it is worth it in the long run can be difficult.

4) Marketplace – suppliers and installers are not as commonplace and it is not something we are used to procuring.

5) Resistance to change – it's all new and not 'how things have always been done', which tends to be a commonplace attitude!

6) Cost/value for money – some renewable solutions are still very expensive and may not make much of a difference to the amount of energy required for projects.

7) Consistent/sustainable fuel source – e.g. biomass boilers – local suppliers of materials may be few and far between, plus it is a sustainable supplier? What is the carbon footprint of the deliveries and will this outweigh the benefits of having one? Is there enough storage on site for the material?

8) Space/ground conditions – contaminated land/little outside space would limit ground source heat pumps and the like.

9) Building design & maintenance – obviously CDM Regs need to be complied with so the energy source would need to be safe to maintain (e.g. cleaning PV panels etc)

Local authorities are more likely to mention other barriers. Government policies are seen as disjointed and the uncertainty around the low carbon agenda was seen as a barrier. At a local level, planning policies vary and there are differences in how they are implemented. They also cite manipulation of the planning rules by developers/builders to avoid having to install renewable energy technologies. Local authorities and developers also recognised that lack of information, knowledge and experience amongst planners and developers and an overall lack of experienced resources are barriers. Some local authorities have found that there is a shortage of suitable land (especially for wind and biomass).

The equipment suppliers had a different perspective on the barriers highlighting problems with getting planning consents and delays/costs associated with grid connections. Specific issues related to the energy supply and network aspects of low carbon technologies include:

- Lack of attractive feed-in tariffs and different approaches depending on the energy supplier e.g. Scottish & Southern currently offering very attractive tariffs but others are poor;
- Development of energy infrastructure on large sites. For example, this is one of English Partnership's biggest problems. In their Carbon Challenge sites, they were advertised to developers, "but maybe should have been targeted at utilities. Developers have to hunt around for an energy provider and they haven't got their heads around it yet (i.e. that the developments are more about the energy infrastructure)";
- Criteria for financing developments are not appropriate for long term energy infrastructure projects
- Ineffective links between the Distribution Network Operators (DNOs) and developers/local authorities - "no-one knows who to talk to"
- Network operators being involved too late in the project cycle hence get surprises when told that there is insufficient capacity;
- Time, costs and inconsistencies over connections between the different DNOs;
- Network constraints – lack of understanding of the issues and problems by developers and local authorities;
- Costs and timescales of feasibility studies before can get quote from the network operator.

2.5 Comments on DNOs and ENW Support

Overall many of the respondents were unsure of ENW's role and did not have much knowledge of the distribution network or how it could affect their developments. However, some provided useful feedback on areas for improvement and services that they would find useful.

The local authorities and some of the developers were pleased with the interest being shown by ENW in the low carbon energy market and the related network issues. The renewable energy technology/CHP firms and the energy suppliers were more suspicious about the motives of ENW in undertaking this project but were generally cooperative and informative in their responses. Examples of comments on ENW and DNOs in general are provided below:

- "Don't understand what they do"
- ENW/UUES[2] have been very helpful on New East Manchester
- Usually find it easy to connect to network…. include DNO costs in our charges (PV supplier)

[2] United Utilities Energy Services

- DNOs need to improve service on connections – timescale and advice on how to keep costs down
- ENW wouldn't usually come to mind…. we normally employ M&E consultants
- Only EdF amongst the DNOs are at all proactive - at the other DNOs, it’s like "nobody’s home" (Energy Supplier).

Many of the respondents were helpful in suggesting areas in which ENW could help and/or provide additional services. Some of these are for services that ENW/UUES already provide which reinforces the lack of awareness of the support that is available:

- More information and support (e.g. on network availability and constraints) at an early stage in the development;
- Educating planners, developers and others. This could include bespoke workshops or involvement in existing events such as the Greenbuild Fortnight in Cumbria that takes place in August/September with 30-40 sites opening up for visits, workshops, discussion and networking;
- Establish a developer ‘club’ to provide information on grid capacity and areas for development. For example, could the developer enter the post codes of the development and get data quickly on the nearest connection point and the available capacity at a point in time?
- Advice on low carbon options and impacts on the network. ENW could offer a service at the front end/early stages of a development - how to achieve the results in the most cost-effective way e.g. load management versus reinforcement;
- Could ENW invest in RE generation to address grid capacity issues?
- ENW could take an active role in the development of energy infrastructures on major sites;
- Investment in new energy networks (CHP and district heating/cooling) through partnerships with local authorities;
- ENW could get involved in the establishment of community ESCOs and multi-utility service companies (MUSCOs);
- ENW could invest directly in distributed generation such as wind farms e.g. by investing in renewable energy projects on brownfield sites which are not suitable for housing.

3. Conclusions

3.1 Drivers

There are a wide range of EU, UK and regional policy/regulatory drivers aimed at accelerating the move a low carbon economy in the North West. These have had some effect in stimulating the market for low carbon technologies in new developments especially in the public sector where the drivers are stronger than in the private sector.

However, there is a lot of uncertainty over how the more recent policies and regulations will impact on the market, especially:

- UK Renewable Energy Strategy to achieve the EU targets;
- Carbon budgets and trading;
- Carbon Reduction Commitment;
- Reform of the Renewables Obligation including the introduction of a Renewable Heat Obligation;
- Definition of zero carbon homes;
- Regional Spatial Strategy for the NW, the targets/areas for renewable energy developments and the development of a Single Regional Strategy.

Most of those interviewed stressed that there will need to be a considerable ramping-up of investment if the 2015 and 2020 carbon reduction and renewable energy targets are to be achieved. How this will be achieved is still unclear.

The following specific drivers were identified by those involved in making and influencing decisions about low carbon developments (not in order of importance):

- Planning requirements including PPS1/PPS22 and renewable energy targets in local authority SPDs and LDFs;
- The Code for Sustainable Homes (CSH) which is a major driver for Housing Associations and others e.g. English Partnerships and Manchester City Council;
- BREEAM (very good/excellent) especially for commercial buildings and developments. It is included in some Local Authorities planning requirements and is also seen as a good marketing tool;
- The Energy Performance of Buildings Directive (EPBD), the introduction of Energy Certificates for buildings and more stringent Building Regulations;
- High fossil fuel price and continued uncertainty about energy price rises;
- Fuel poverty in the social housing sector for both new build and retrofit of renewable energy;
- The financial mechanisms to stimulate investment in renewable energy especially the Renewables Obligation;
- Corporate responsibility (CR) policies particularly in large firms and their supply chains;
- Waste diversion targets are stimulating investment in a variety of waste treatment technologies including energy-from-waste.

The drivers are much stronger for new developments than retrofit but continued high fossil fuel prices and the impacts of carbon budgets/trading could change this in the future.

3.2 Response to Drivers

Most of the low carbon developments identified in this project have been in the public sector especially in major regeneration areas, council buildings, social housing, schools/colleges and hospitals. Some of the councils in the NW are pushing ahead with the low carbon agenda faster than others.

The private sector has made less progress than the public sector in implementing low carbon developments although there are some notable exceptions to this such as the Co-op and other large firms which have strong corporate responsibility programmes e.g. multiple retailers and some major land and property owners.

Other parts of the UK are further ahead in this field than the North West especially London and Wales and it will be important to monitor what happens in these areas to learn the lessons for the region.

3.3 Rate of Implementation

The results of this study indicate that there will be only modest investments in low carbon developments over the next 3 to 5 years. Developments in the short term (next year or two) will be constrained by the impacts of the credit crunch especially in the private sector. Public sector budgets could also be hit by the lack of growth in the economy.

A series of barriers, identified by those interviewed, will continue to impede the rate of growth including:

- the costs of renewable energy technologies and the long paybacks;
- resistance to change and inexperience especially amongst developers, architects, surveyors and builders;
- lack of information and resources to identify and evaluate the options;
- lack of sites and planning constraints;
- unattractive feed-in tariffs for renewable energy generators;
- network issues e.g. poor understanding of the network issues and constraints, network availability, the cost and timescales for connections.

The main distributed generation technologies which are expected to form the majority of low carbon investments over the next few years are considered to be (note that we did not cover offshore wind in this project):

- Onshore wind particularly small/medium scale wind farms and individual turbines on industrial and brownfield sites;
- PV, solar water and GCHP in the micro-generation sector;
- Biomass community/district heating in the public sector but this will depend on the development of cost-effective supply chains
- Fossil-fuelled CHP and district heating/cooling especially in the public sector;
- Energy-from-waste in the Commercial & Industrial sector – there are already plans for energy recovery from municipal waste with much of the investment likely on Merseyside.

The view from the market is that investment in low carbon developments should start to accelerate beyond the next 3 to 5 years as the new policies and regulations start to bite harder in the run up to 2015/2020.

3.4 Implications for ENW

There is a general lack of awareness about the electricity network in the NW, the key issues facing the DNO and the respective roles of ENW and UUES. ENW is addressing this in the current round of stakeholder consultations and in other activities such as development of the web site but the results of this project indicate that a more proactive, targeted approach is needed.

The market is looking for a closer relationship with ENW at an earlier stage in planning new developments. There is interest in more information on network availability/constraints and advice on low carbon options and their impacts on the network to minimise costs and time. This applies particularly to the leading low carbon councils as well as some developers and site owners.

It was suggested that ENW might be also be able to play a more active role in the development of energy infrastructures/networks especially those involving heating and cooling. Some also suggested that ENW should consider direct investment in distributed generation capacity.

Appendix 1: Interview Guide

Low Carbon Energy Market Survey

Interview Guide Topics

Background and Contact Information

Company/organisation:

Address:

Contact name & position:

Tel & Email:

Type of organisation (local authority, developer, consultant etc):

Activities:

Date of interview:

Current and Planned Developments

1. What are your current development projects?

   New build/refurbishment:

   Public/private sector:

   Type of development (housing, commercial, industrial, mixed):

2. What is the size of development? (area, floor space)
3. Timings of the developments
4. What projects do you have in the pipeline?

   New build/refurbishment:

   Public/private sector:

   Type of development (housing, commercial, industrial, mixed):

5. What will be the size of development? (area, floor space)
6. Timings of the developments

Low Carbon Market Drivers

7. What are the main drivers for reducing the carbon footprint of **new developments** and what is their relative importance?
   - Legislation/regulations
   - Voluntary codes
   - Energy costs
   - Security of supply
   - CSR/supply chain pressures
   - Others.
   -
8. How will these drivers affect **new developments** in the short term (next 3 years)?

9. How will these drivers affect **new developments** in the Medium term (3 to 5 years)?

10. How will these drivers affect **new developments** in the longer term (5 years+)?

11. What are the main drivers for the **retrofit** of low carbon technologies?

12. How will these drivers affect the **retrofit** of low carbon technologies?

Low Carbon Options and Barriers

13. Which low carbon options have been **considered** in the past or are being considered currently for specific developments (link back to section 2)?
   - Energy efficiency measures
   - CHP/district heating
   - Energy-from-waste
   - Renewable energy (large/medium and micro).

14. Which low carbon options have been **implemented?**

15. What have been the results in terms of reducing carbon emissions?

16. Which low carbon options have been rejected and why?

17. What are the main barriers to the implementation of low carbon solutions, especially the DG/renewable energy options:
   - Cost of the technology/long paybacks
   - Inertia/resistance to change
   - Complexity of installation and maintenance
   - Cost of connections and/or reinforcement of network
   - Timescale for connections
   - Exporting to the grid
   - Lack of knowledge/information (e.g. about network availability)
   - Difficulty/costs of evaluating the options

- Planning
- Expiry of grant before project approved?

Overcoming the Barriers

18. What is needed to overcome the barriers?

19. How could the DNO (ENW/UUES) help?
    - More/better information (if so what and when?)
    - Help with evaluating the network implications of different low carbon options
    - Considering non-network solutions rather than reinforcing the network
    - Higher levels of customer service (if so what is needed and what value would you place on this?).
20. What additional/new services could ENW provide in the future e.g. demand management and energy efficiency?

Future Developments

21. What are the main longer term drivers for low carbon developments?

22. How do you see the low carbon technology market developing over the next 5 to 10 years?

23. Would you like to be involved in the current consultation programme which is being run by ENW?

Appendix 2: Interview Sample

Category	Organisation
Regional Bodies	NWDA
	Envirolink Northwest
	Manchester Knowledge Capital
Local Authorities	Blackpool UA
	Bury MBC
	Carlisle CC
	Manchester City Council
	Oldham MBC
	Wigan MBC
Regeneration Companies	ReBlackpool
	English Partnerships
	New East Manchester
	West Lakes Rennaissance
Housing Associations and RSLs	Northern Counties Housing
	Northwards Housing
	Places for People
	Servite Homes
Health Care Trusts & Hospitals	Stepping Hill Hospital
	S. Manchester University Hospital Trust
	Trafford Healthcare NHS Trust
Developers and Builders	Allied London
	Countryside Properties
	Laing O'Rourke
	Lovell Partnership
	Muse Developments
	Peel Holdings
Renewable Energy Suppliers and Installers	Clarke Energy
	Energy & Environment
	Energy for All (Baywind)
	Refgas
	Solar Century
	Turbine Services
	Vital Energi
	Wind Prospect
Contractors and Consultants	Advantage Projects
	Bethell
	Drivers Jonas
	Faber Maunsell
Others	Biffa Waste Services
	Co-op Group
	Dalkia
	Energy Technologies Institute
	EDF
	Joule Centre
	Npower