Example Case Studies

Exchange Greengate, Salford (Case study 3) A large mixed-use masterplan

Description

A new central business district to provide new commercial office, hotel, leisure and retail space. The investment is likely to trigger further development of adjacent sites.

The planned approach

The phases of proposed development were mapped, along with large commercial buildings near to the site, public building assets including social housing and schools and potential development sites.

The high density, central location means it is well suited to Combined Heat and Power (CHP) using natural gas, although this may limit carbon reductions achievable for later phases.



A 'network development area' would be created. The first phase will be requried to anchor a new district heating network. Later phases would be required to connect to this.

Higher carbon reduction targets could be met by requiring future phases to financially contribute to connecting public buildings.





Trinity / Blackfriars Network expansion area Cityside network expansion area Phase 1 - Anchor network connection policy area Phase 2 - Network connection policy area Possible energy centre location

Old Trafford, Trafford (Case study 5) An estate regeneration plan

Description

A regeneration masterplan identifying housing stock for refurbishment and demolition as well as sites for new housing and community buildings.

The planned approach

The phases of the masterplan were mapped, along with existing public buildings, retained housing, and an existing district heating network.

The earlier phases would be spread across many small sites. Development in the purple 'microgeneration area' would be required to install at least one technology and/or to contribute to installations on community buildings.

The later phases of housing would need to be 'zero carbon'. Investment in Combined Heat and Power (CHP) fuelled by biomass



(wood) fuel would be the least cost solution but would require a sufficient heat demand.

Critical mass could be achieved by creating a 'network development area' bringing together new housing, schools, a college and tower blocks refurbishments, then linking them to an existing district heating network.



Micro generation policy area Network connection and expansion policy area Alexandra Park network expansion area B Possible energy centre location

5. Bringing it all together

The study identified strategic energy opportunity areas and locations for decentralised energy, highlighting the need for a City Region scale planning framework to manage the costs and realise the benefits of investment in new infrastructure.

The study highlighted the potential role an energy spatial plan for the City Region could play in supporting the scale and pace of change required to meet the zero carbon challenge.

This could be achieved by co-ordinating activities at a range of scales, with the potential to create the certainty needed for investment to take place.

The study set out a vision for an energy spatial plan for the City Region. The plan would be driven by a set of high level strategic aims for the City Region. An overall spatial approach would then enable these aims to be realised.

This overall approach is described by strategic energy opportunity areas for investment represented spatially by broad areas and locations across the City Region where development is likely to take place. The plan, or parts of it, could acquire a

statutory planning status by incorporating the proposed spatial approach, together with the target framework outlined in Section 4, into each district's Local Development Framework (LDF) Core Strategy. An energy development plan document could also be jointly developed in order to support investment in specific technologies across the City Region.

The study highlighted the significant resource implications of implementing the proposed approach. The study identified the need for capacity building to develop the expertise of planners and regeneration teams in each district and for shared technical support at a City Region level.

The proposed strategic aims for a City Region energy spatial plan, and the broad energy opportunity areas that could form the basis for the proposed energy spatial plan are presented on this and the facing page.

Proposed strategic aims for the City Region

- To decouple economic growth and development from CO₂ emissions;
- To decouple energy prices from rising oil, natural gas and carbon prices;
- To decarbonise the energy supply in line with national policy objectives;
- To strengthen the City Region's position as a low carbon economic area:

- To harness the City Region's energy resources and assets in order to meet its energy needs, now and into the future;
- To use strategic infrastructure to achieve greater CO₂ reductions, earlier and at lower cost;
- To use strategic infrastructure to provide wider benefits to businesses and communities.

Proposed energy opportunity areas



Ship Canal corridor

Development of a heat pipeline between Carrington power station and the Regional Centre to serve the corridor.



Town centre networks

District heating and cooling networks in and around at least eight centres, using locally available waste heat.



Biofuel supply chains

Strategic development, including sites for processing and storage served by road and rail.



Regeneration retrofit areas

District heating networks and large scale micro-generation as an integral part of major retrofi programmes.

Regional Centre Network

A district heating and cooling network supplied by gas and biomass CHP and geothermal wells



Local centre networks



District heating networks where there is sufficient critial mass in and around local centres, anchored by public buildings.

Identification and allocation of wind 'cluster and single turbine sites where a viable wind resource exists.



Moving Towards an Energy Spatial Plan: Broad areas and locations

BOLTON

The building blocks for a spatial plan are proposed as 'energy opportunity areas', identified in the form of either broad areas or locations. These opportunities are then mapped on the adjacent plans using the corresponding coloured detailed key to the left.

Energy opportunity locations



TRAFFORD MANCHESTE

URY

ROCHD



- Ship Canal corridor
- Regional Centre network
- Area of high wind speed

6. Underpinning the approach

The study highlighted the need for the role of planning to be complemented by a number of other key activities, including public sector commitment to support projects, innovative approaches to funding and investment, and collaborative working arrangements.

Experience from other leading City Regions has shown that planning is not enough on its own to affect change.

The public and private sector will need to work together to ensure there is enough commitment for projects to go ahead and to manage the costs, and realise the benefits of new infrastructure.

Each technology has very specific requirements in order to support greater investment. So, for example, new energy networks require a different approach from investment in many thousands of solar roofs.

Leading examples from Germany and Denmark, three of which are presented across the page, have also highlighted the need for innovative and flexible approaches to project delivery.

The diagram 'Linking planning and investment' describes in simple terms the relationship between the need for planning policies which could be promoted as part of an energy spatial plan, and nonplanning activities highlighted by the study.



Linking Planning and Investment

Planning policies

1. District planning policies

Adoption by the ten districts of pro-active spatial planning policies and targets which promote investment in energy opportunities.

2. Cross boundary policies

Adoption of pro-active spatial planning policies to promote investment in energy opportunities that span several district boundaries.

3. Infrastructure contribution funds

Establishment of local, district and city region investment funds to pool contributions from developers towards lower cost community energy infrastructure.

Investment activities

4. Public sector commitment

The commitment of public sector buildings in order to support new energy networks. The public sector can also provide access to low cost finance and co-ordinate the use of infrastructure contributions.

5. Energy services delivery

Innovative methods of financing and procuring projects will be needed, creating new opportunities for the districts and the City Region.

6. Existing network investment

The gas and electricity network operators will need to be involved in order to manage the cost of connecting new infrastructure to existing networks and to realise the benefits of new technology.

Precedents: Three inspiring examples of how it can done



Berlin Energy Agency An Energy Service Company with a difference

The agency was established as an ESCo to invest in low and zero carbon technologies and the energy efficient upgrade of buildings.

It is a joint venture between the City Council, the gas, electricity and heat network operators, and an investment bank.





Freiburg FESA A sub-regional fund supporting a low carbon transition

Freiburg has a specialist sub-regional investment fund called FESA which has developed major solar, wind, hydro and biomass projects.

It has themed funds for specific technologies, such as 'Regiowind' which built a wind farm for Freiburg City Council.





Copenhagen co-operatives Co-operatively owned renewable energy projects

Copenhagen has two wind farms, the finance for which was raised by cooperatives whose members include the City Council, the local energy company, businesses and households.

This approach helped significantly to build acceptance and ownership of the project. The model is also used for district heating.













Decentralised and zero carbon energy planning

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