Enabling Low Carbon Community Planning at a Local Scale

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The Policy Development Process

- National and Regional Policy Context
- Physical Context
- Delivery Context
- Local Policy and Action
Key Drivers

- 80% carbon reduction by 2050
- 15% renewable energy by 2020 (July 2009)
  - 30% electricity
  - 12% heat
  - (10% transport)
- Zero carbon homes by 2016
- Zero carbon building by 2019
“Planning authorities should have an evidence-based understanding of the local feasibility and potential for renewable and low-carbon technologies, including microgeneration, to supply new development in their area.”
Seeking to move from a centralised to a more decentralised energy network....
The starting point is a spatial understanding.
UK policy requires that local authorities understand the following and develop policy to influence:

• The current carbon emission profile and performance of buildings
• The Local potential to integrate low carbon and renewable technologies
• The delivery opportunities associated with new development and regeneration
• How they can adapt to climate change
How can GIS help decision makers for low carbon planning?

Examining Existing Conditions
Existing Consumption - Gas
Existing Consumption - Electricity
Why are these areas using more energy?
• Age
• Stock Type
• Income
• Tenure
How can GIS help decision makers for low carbon planning?

Understanding Renewable Resource Potential
Biomass Crop Potential
Wind Speeds Suitable for Large Scale Wind Turbines
Wind Energy Potential Considering Planning Constraints
Wind Turbine Potential – Urban Context

[Image of a wind turbine in an urban setting with a map indicating wind speed and constraints.]
Estimating Turbine Capacity to inform Local Targets
Intensity of Domestic and Non-Domestic Heat Demand
Considering Financial Heat Network Viability Extent
Bringing it Together into a Planning Tool
How can GIS help decision makers for low carbon planning?

Driving delivery through new development and regeneration
Near-site renewable opportunities for new development
Planning a heat network

• To deliver a heat network we consider:

  – Heat demand distribution
  – Location/Size of new development
  – Key Heat Users (Anchor loads)
  – Potential heat generators
  – Council owned properties
Highlighting areas promising for delivery by communities
How can GIS help decision makers for low carbon planning?

How do local communities adapt to climate change
Climate Change Vulnerability

- Policy can highlight priority areas for climate change adaptation areas considering:
  - Urban heat island effect
  - Density of green infrastructure
  - Age of population
  - Health of population
Examining the multiple benefits of natural features

- Employment Value
- Housing Quality
- Green Transport
- Climate Change
- Resources
- Biodiversity
- Recreation
- Heritage and Tourism
Index of Multiple Benefits

Weighted scoring of multiple spatial benefits to prioritize delivery of interventions
Conclusions

• GIS is a key planning tool to prioritise carbon reduction and climate change adaptation initiatives

• Energy opportunity plans have been adopted into policy documents to assist both planners and developers

• Spatial analysis can be used to identify key delivery actions and partners

• GIS is directly influencing policy and is used as an updateable tool for monitoring
Thank You

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