Enabling Low Carbon Community Planning at a Local Scale

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Thursday July 15, 2010

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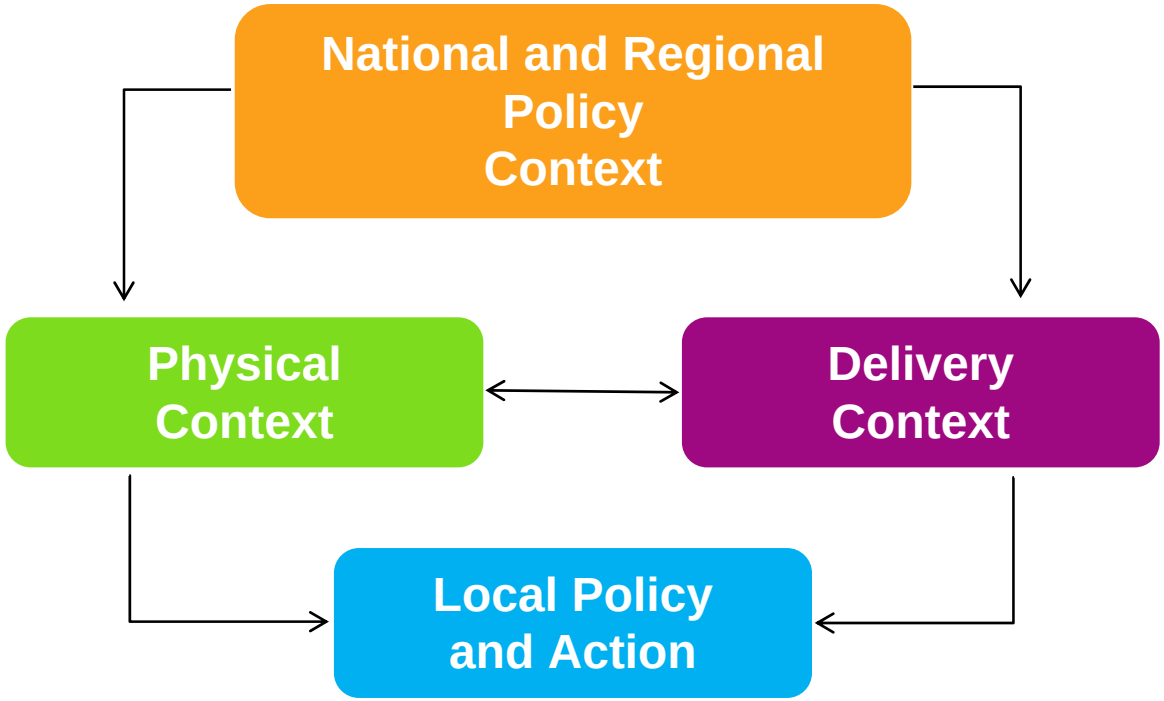
The Policy Development Process



Key Drivers

Carbon Reduction

- 80% carbon reduction by 2050

Renewable Energy

- 15% renewable energy by 2020 (July 2009)
  - 30% electricity
  - 12% heat
  - (10% transport)

Carbon Efficient New Development

- Zero carbon homes by 2016
- Zero carbon building by 2019

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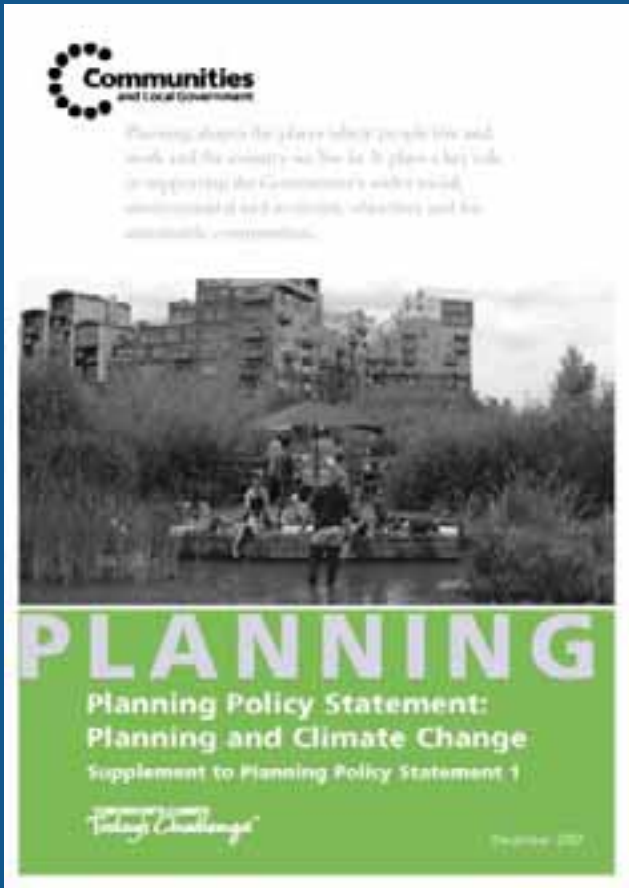
PPS1 requirements…

"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."



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Seeking to move from a centralised to a more decentralised energy network....
The starting point is a spatial understanding

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Change is in the hands of Local Government

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

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How can GIS help decision makers for low carbon planning?

Examining Existing Conditions

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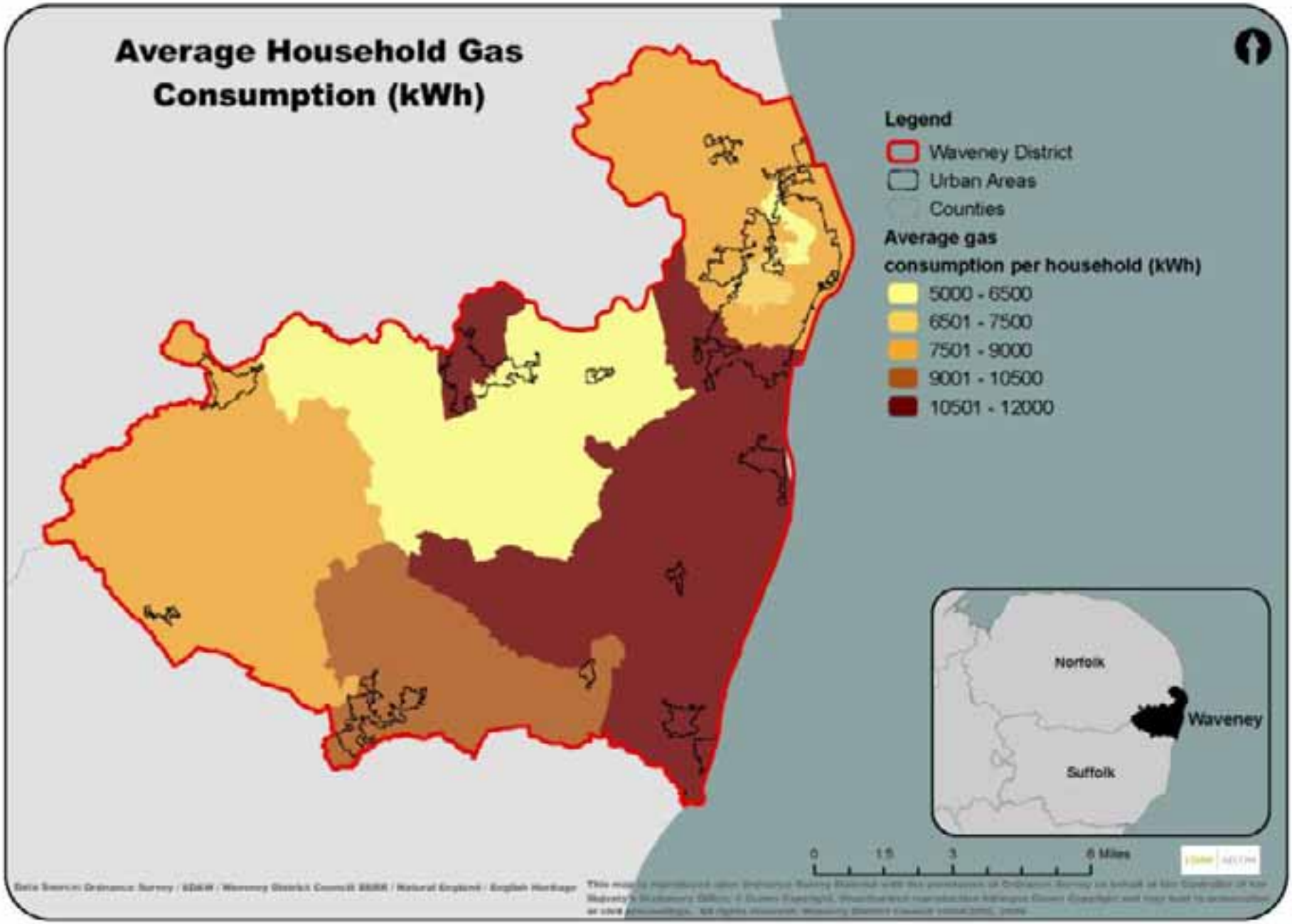
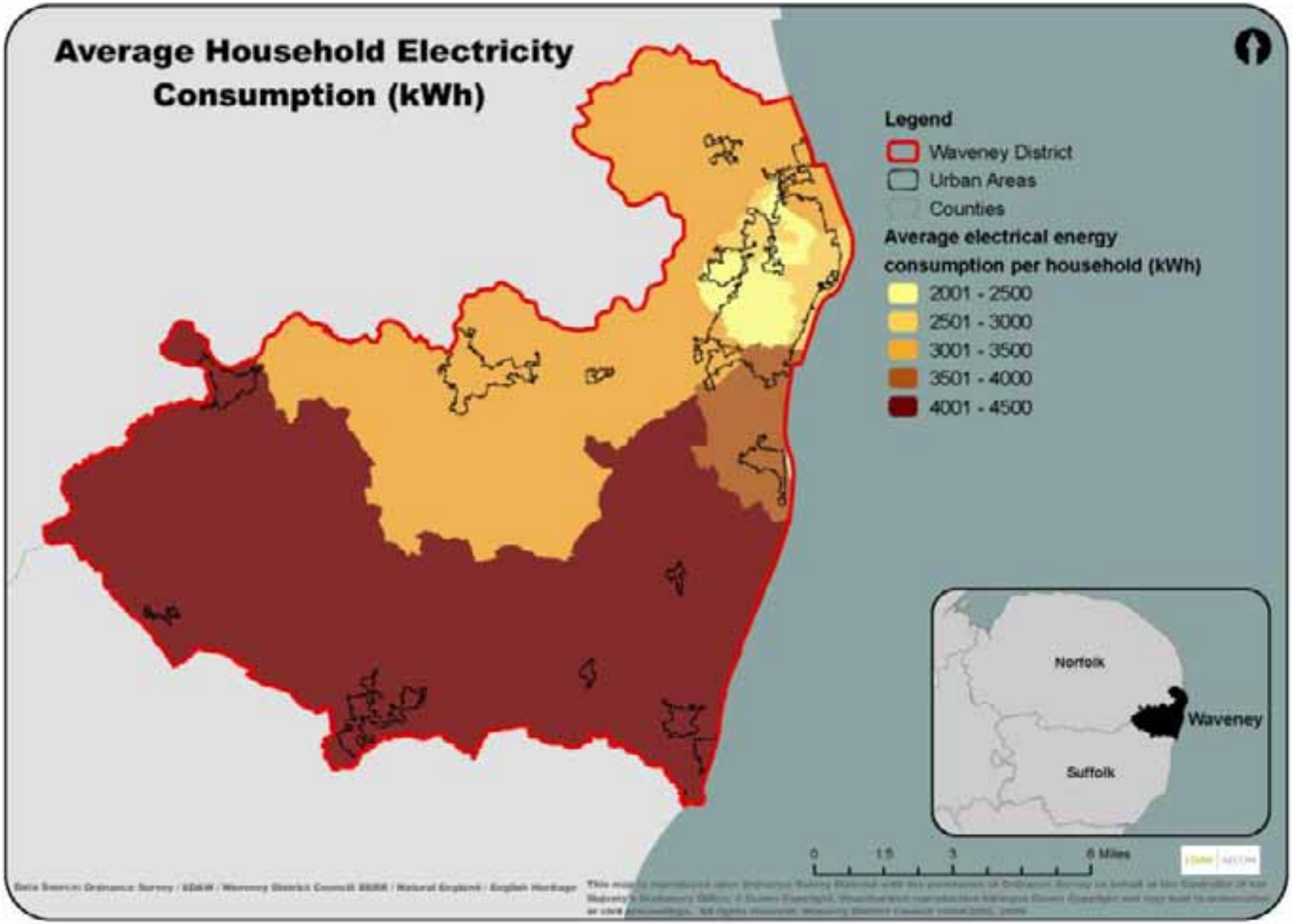
Existing Consumption - Gas



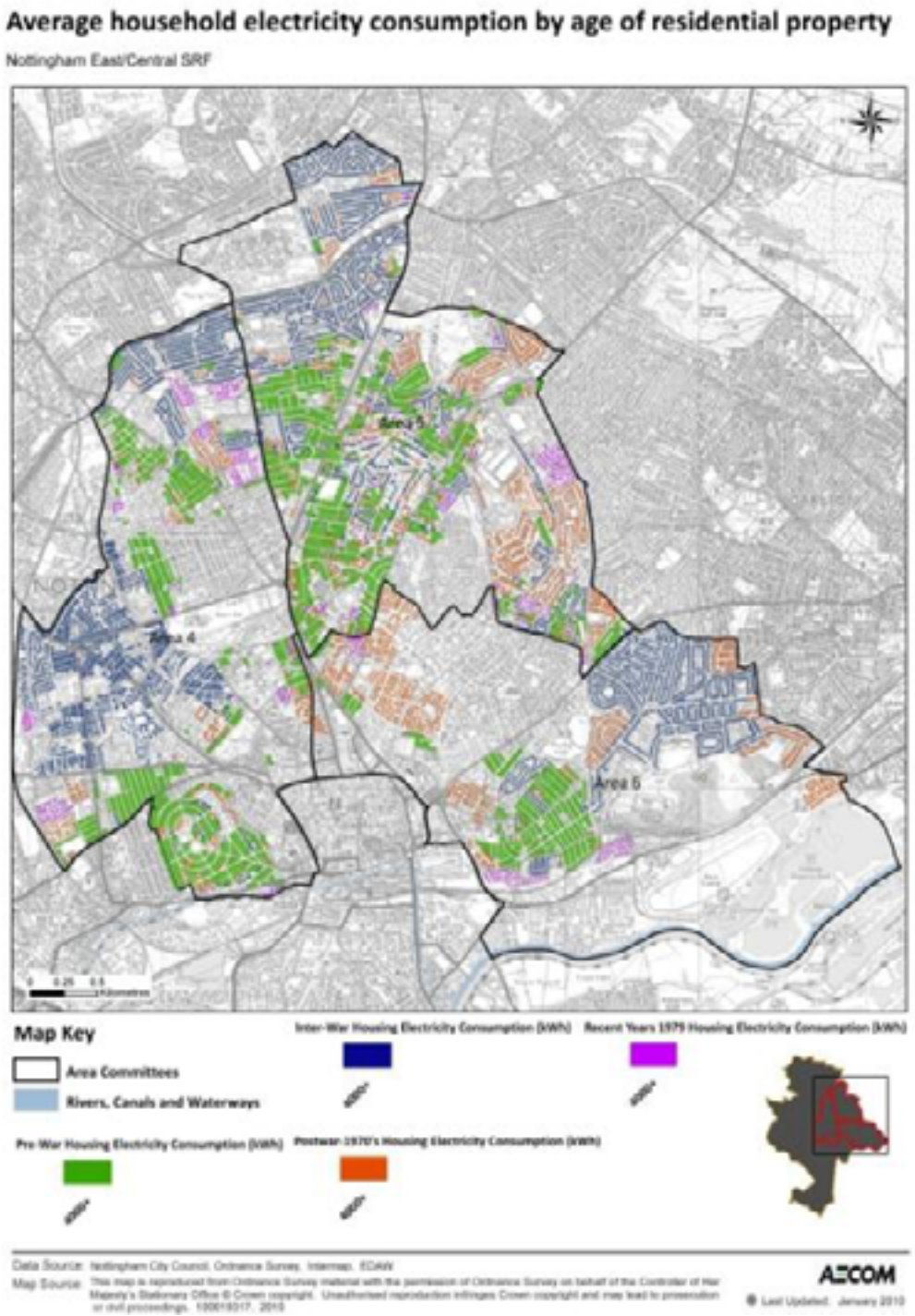
Existing Consumption - Electricity



Existing Consumption Stock Age

Why are these areas using more energy?

- Age
- Stock Type
- Income
- Tenure



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Understanding Renewable Resource Potential

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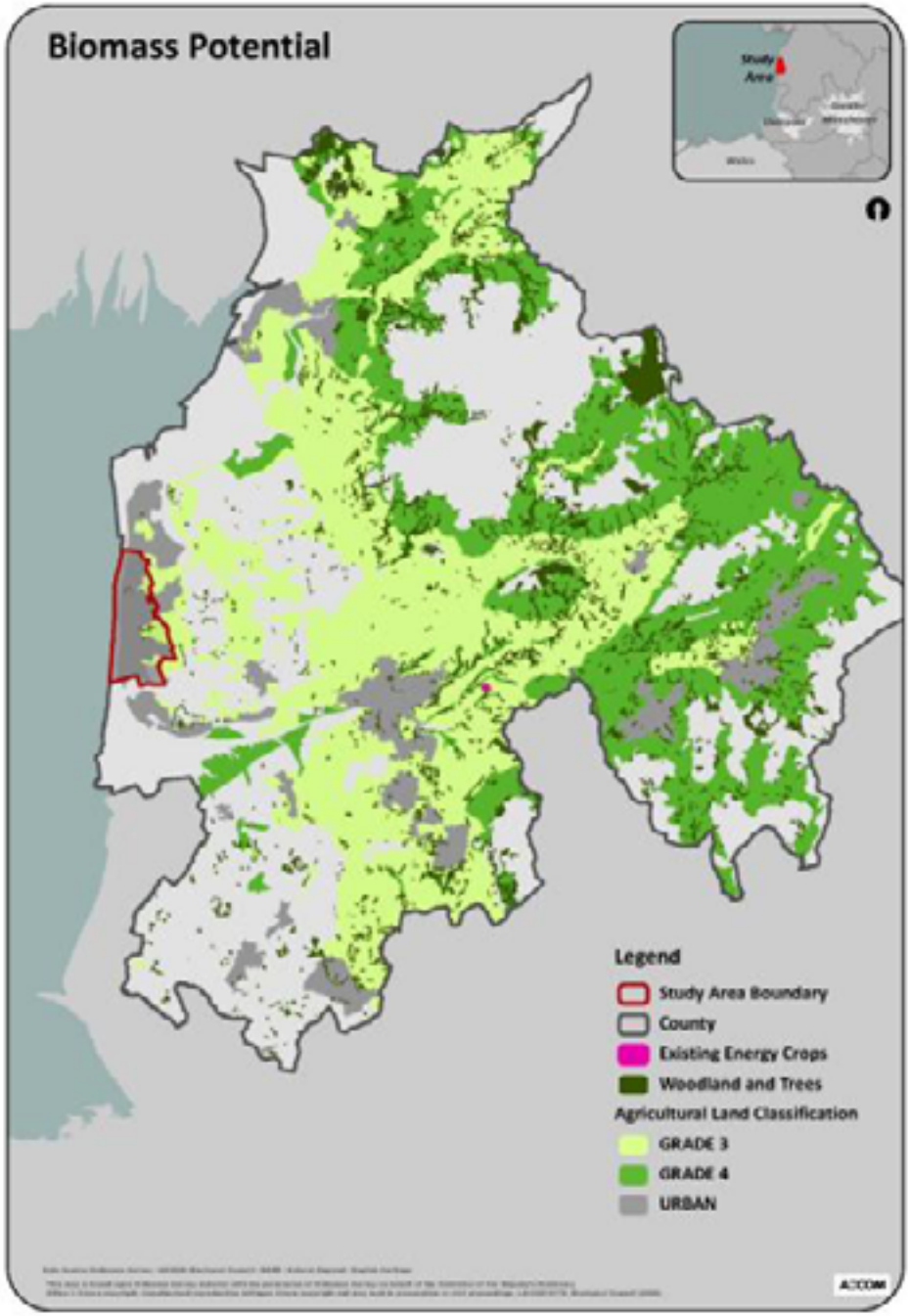
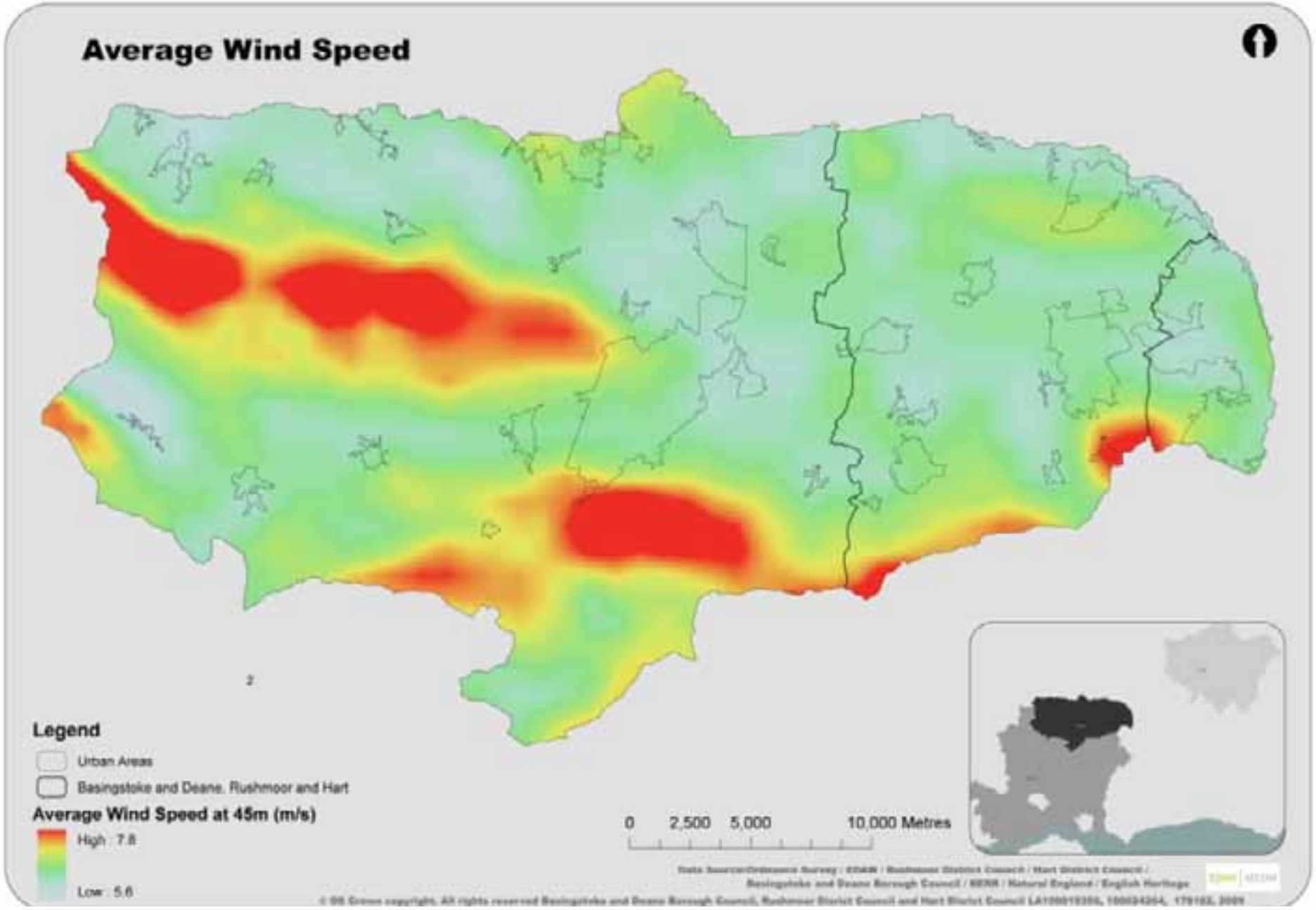
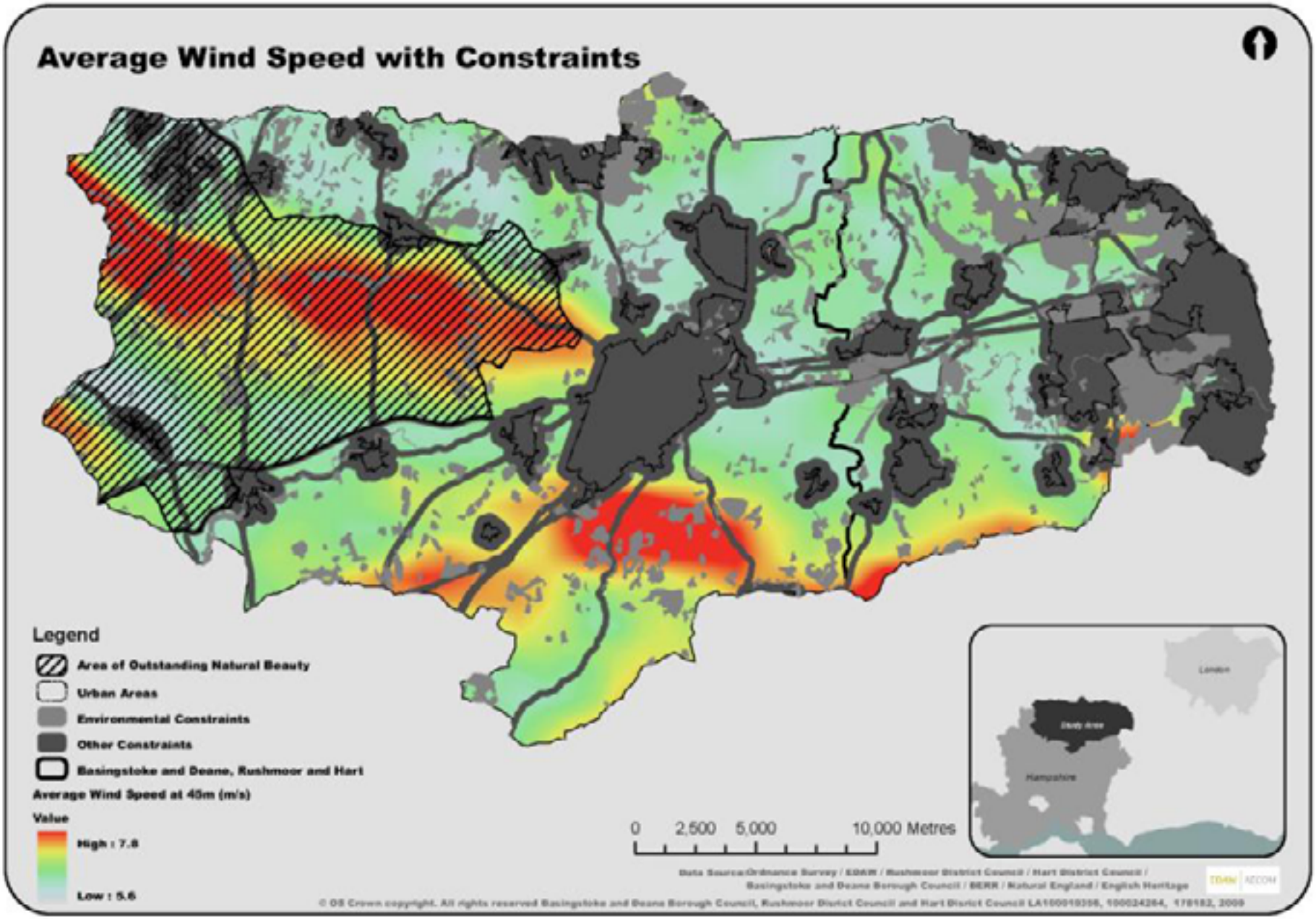
Biomass Crop Potential



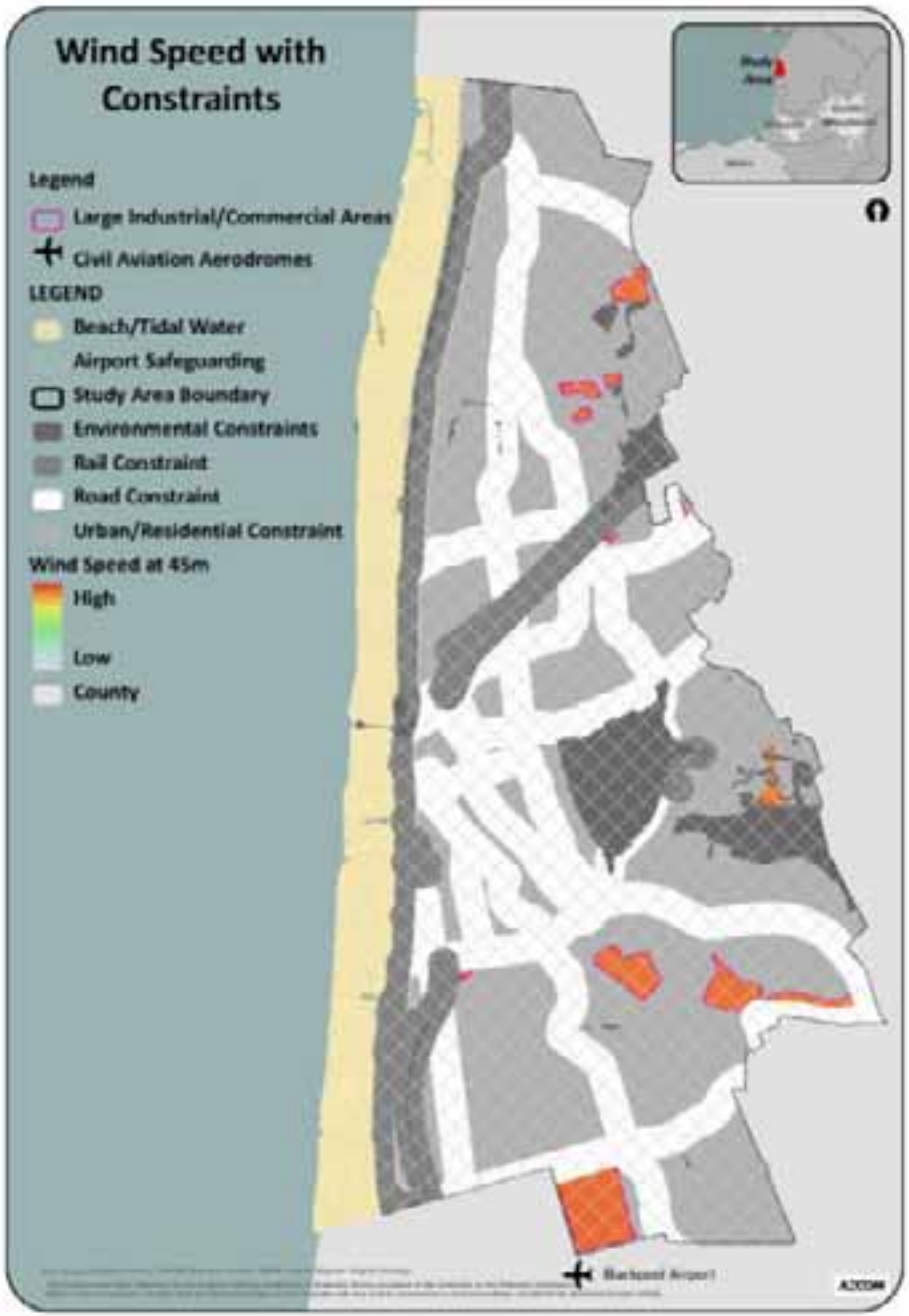
Wind Speeds Suitable for Large Scale Wind Turbines



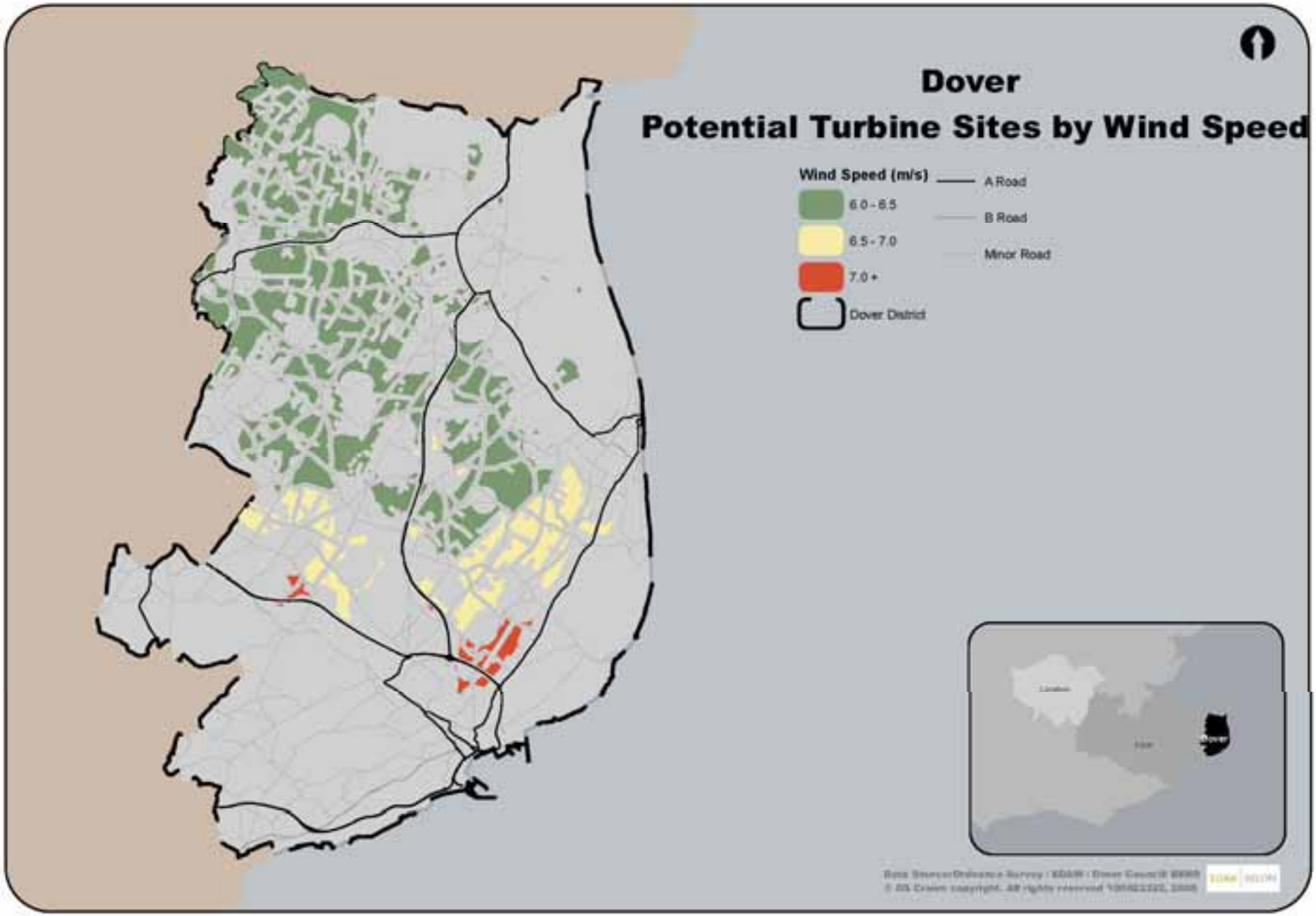
Wind Energy Potential Considering Planning Constraints



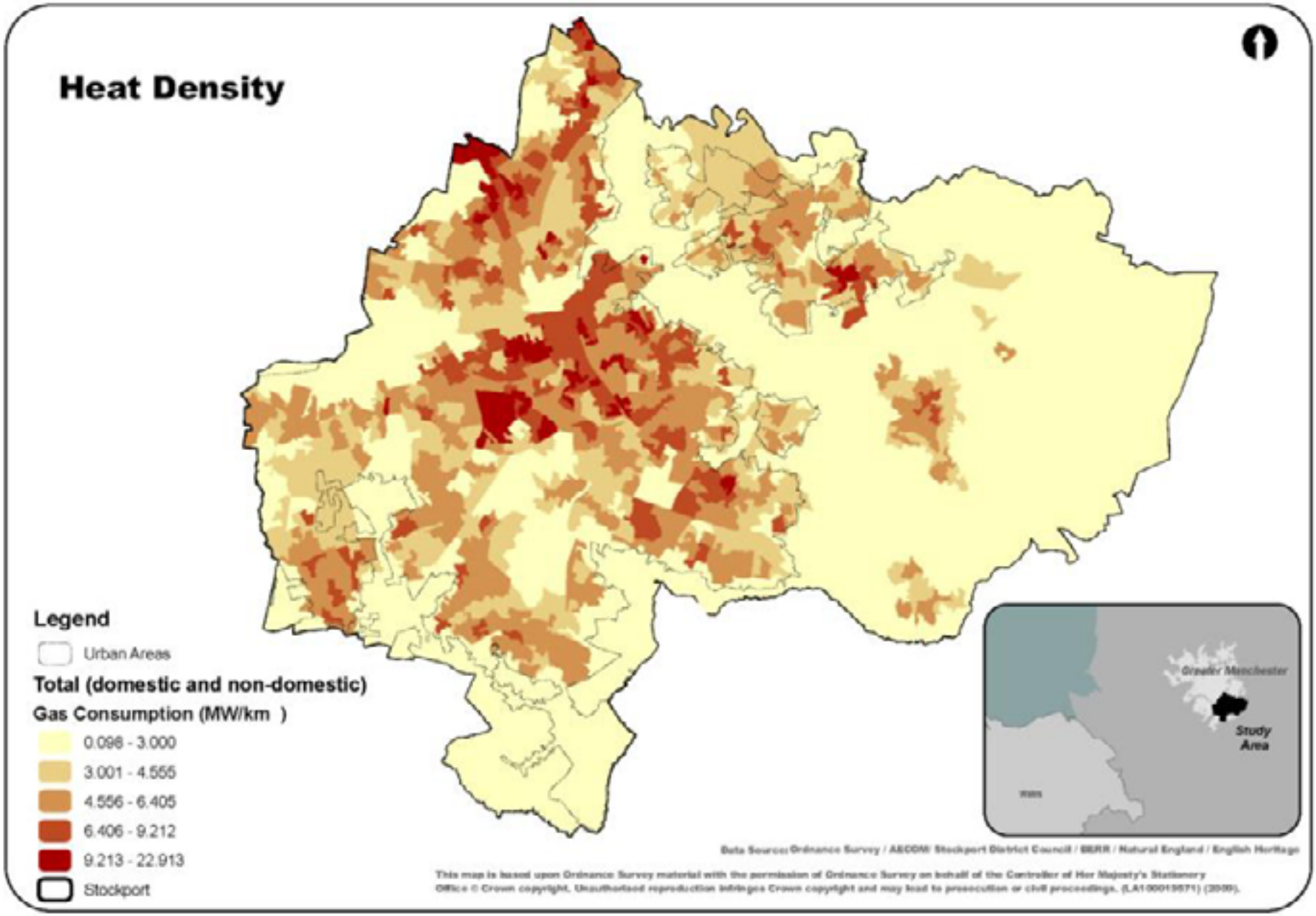
Wind Turbine Potential – Urban Context



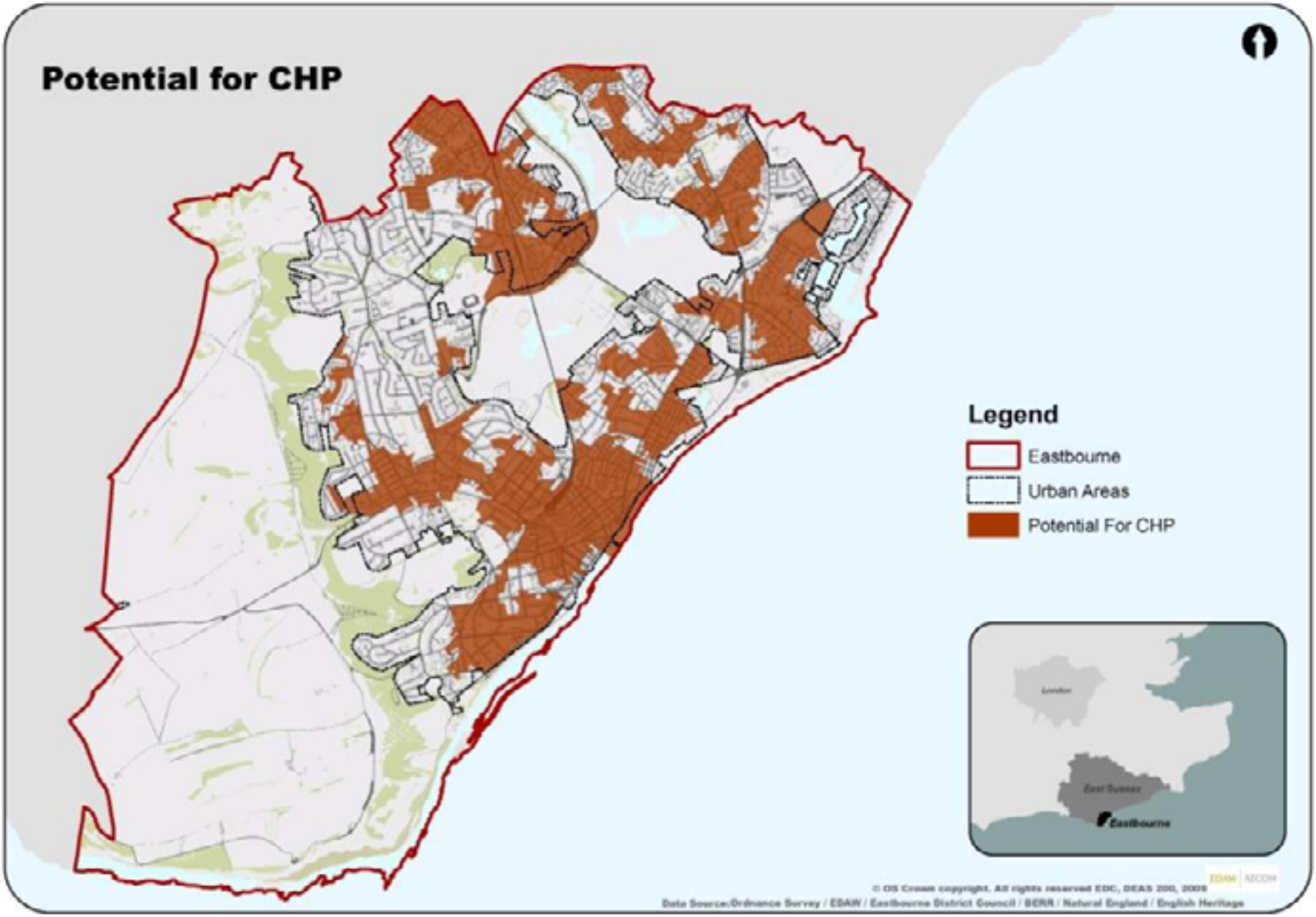
Estimating Turbine Capacity to inform Local Targets



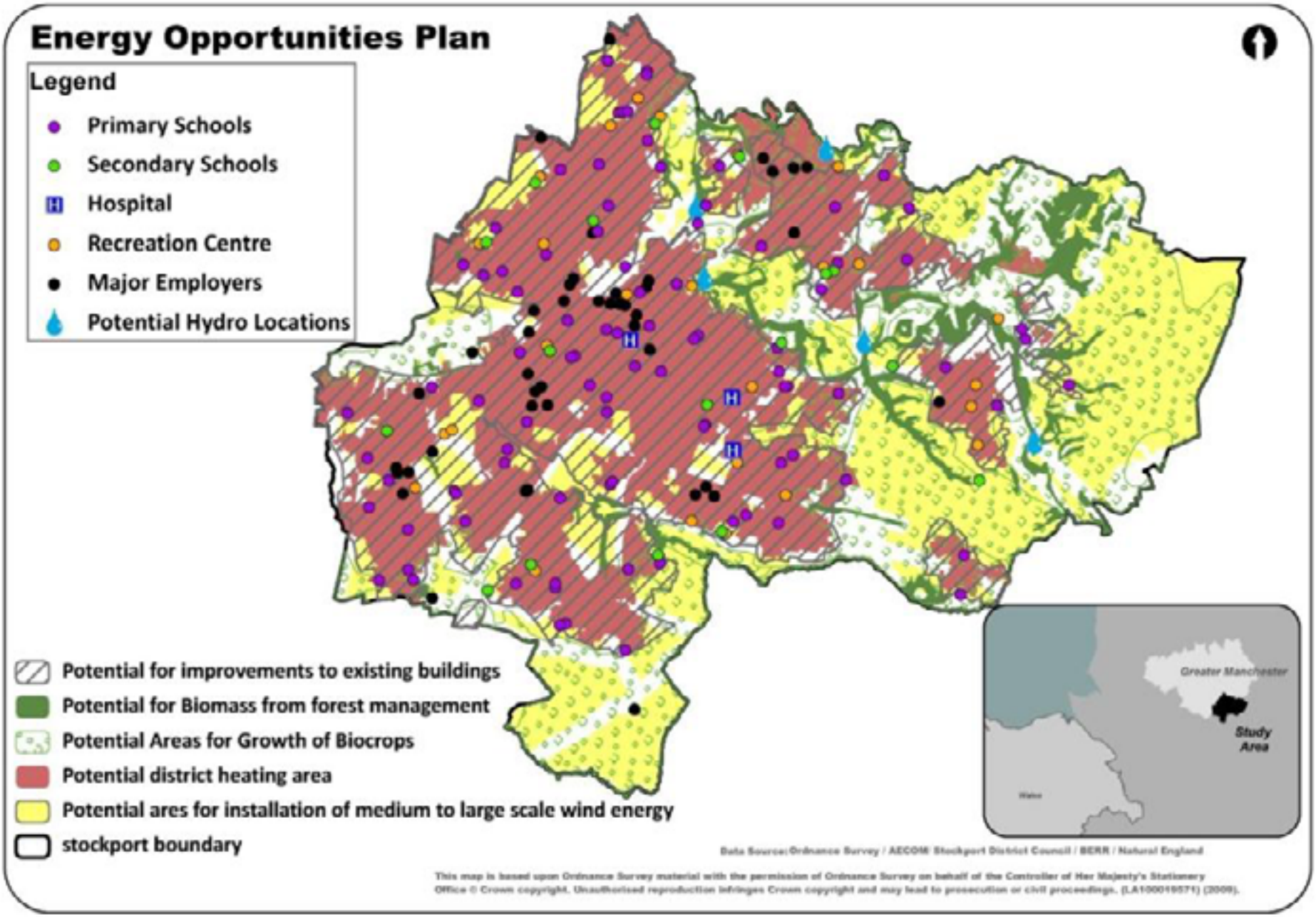
Intensity of Domestic and Non-Domestic Heat Demand



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

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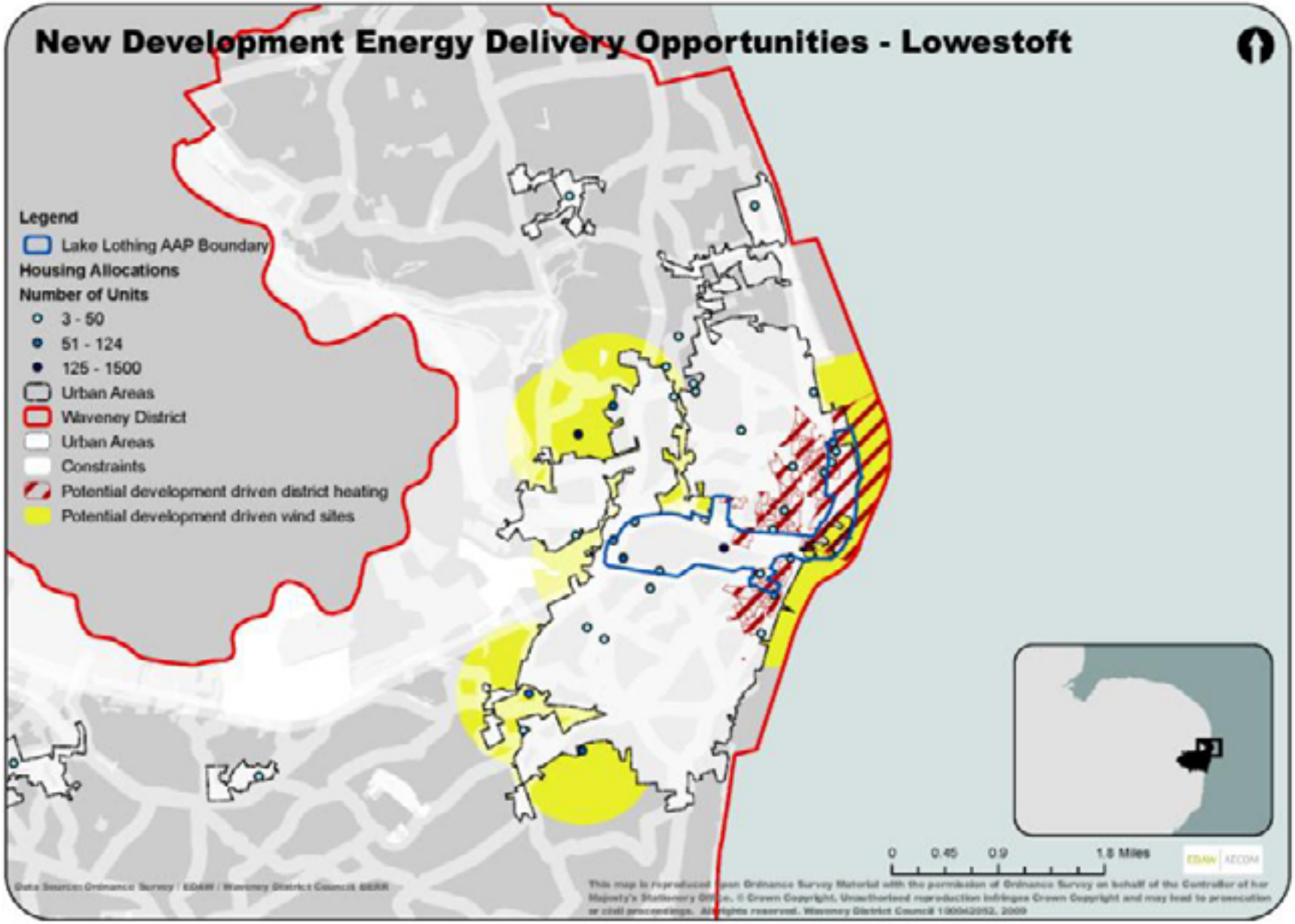
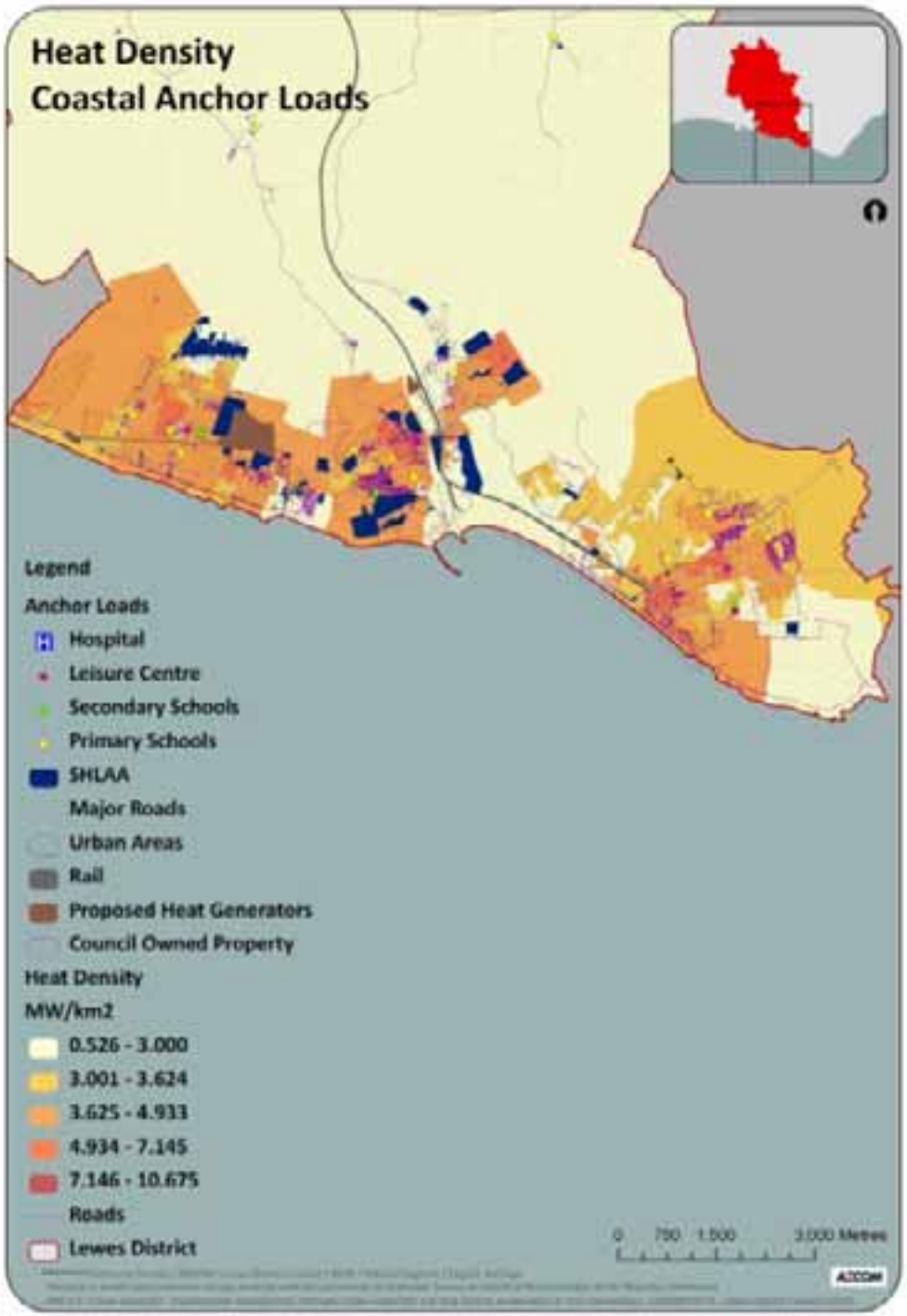
Near-site renewable opportunities for new development

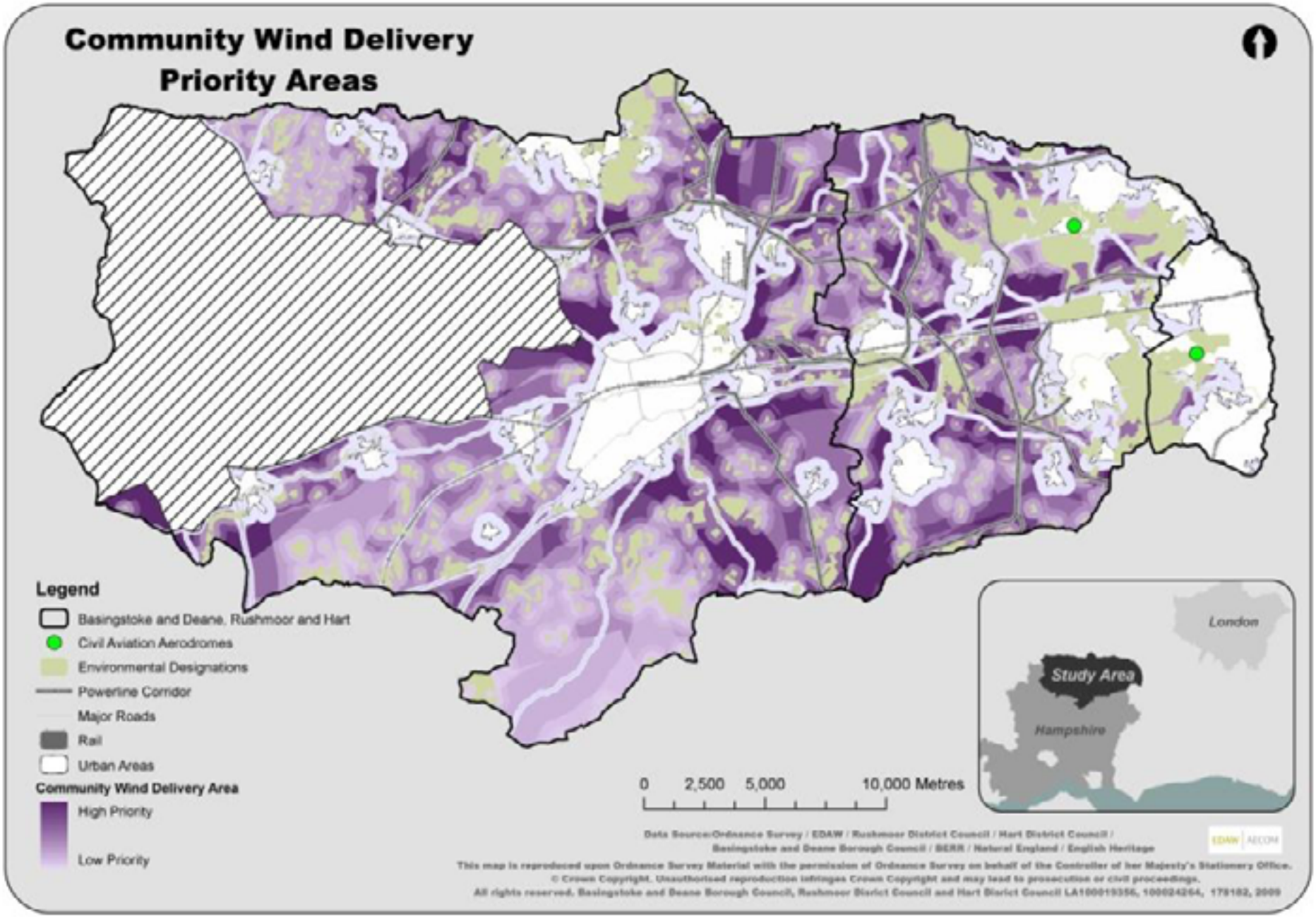


Planning a heat network

- 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

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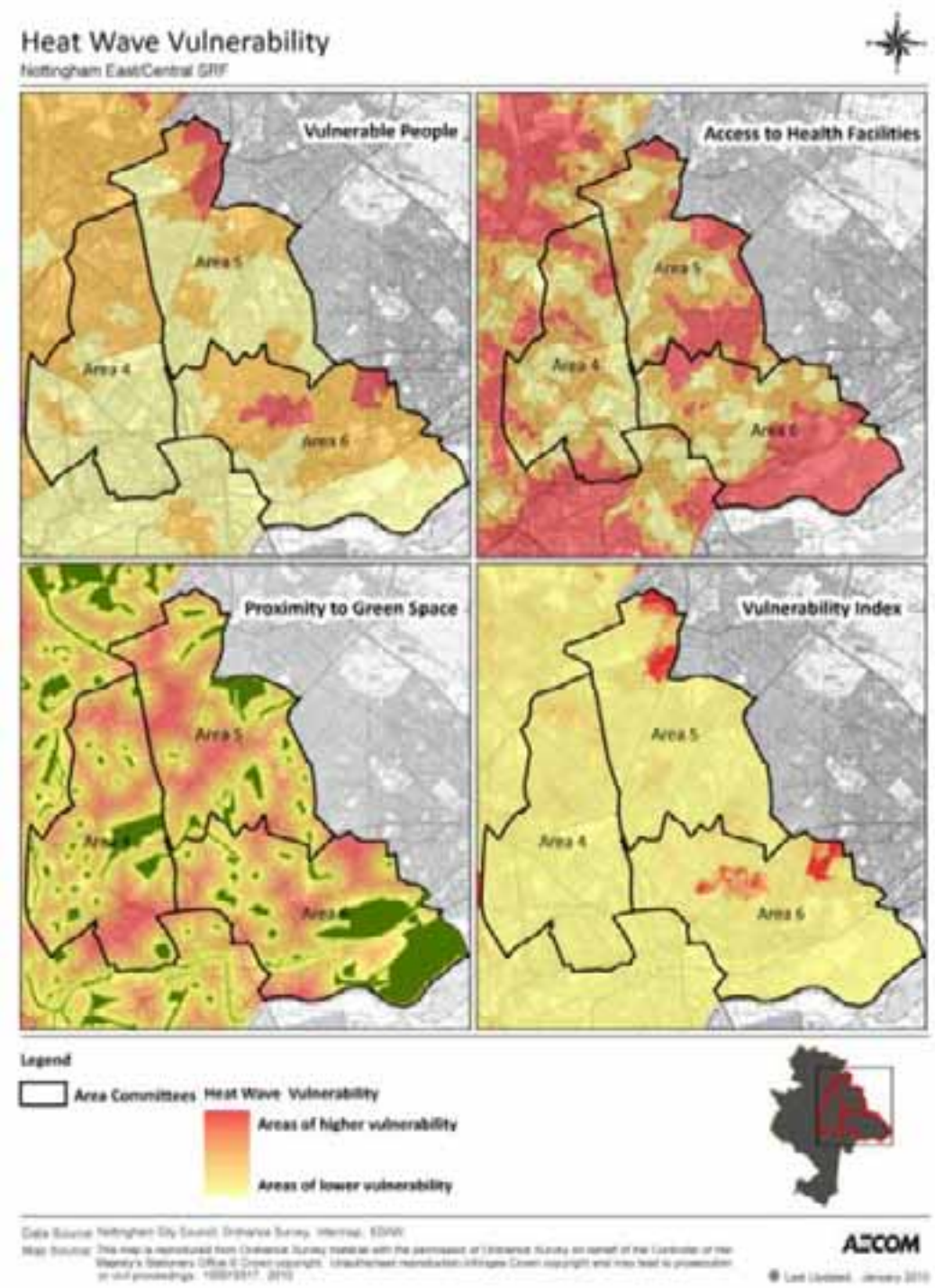
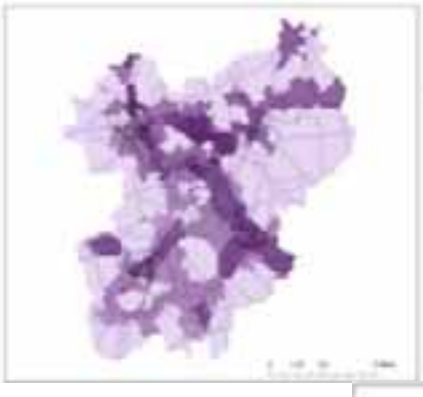
Climate Change Vulnerability

- 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

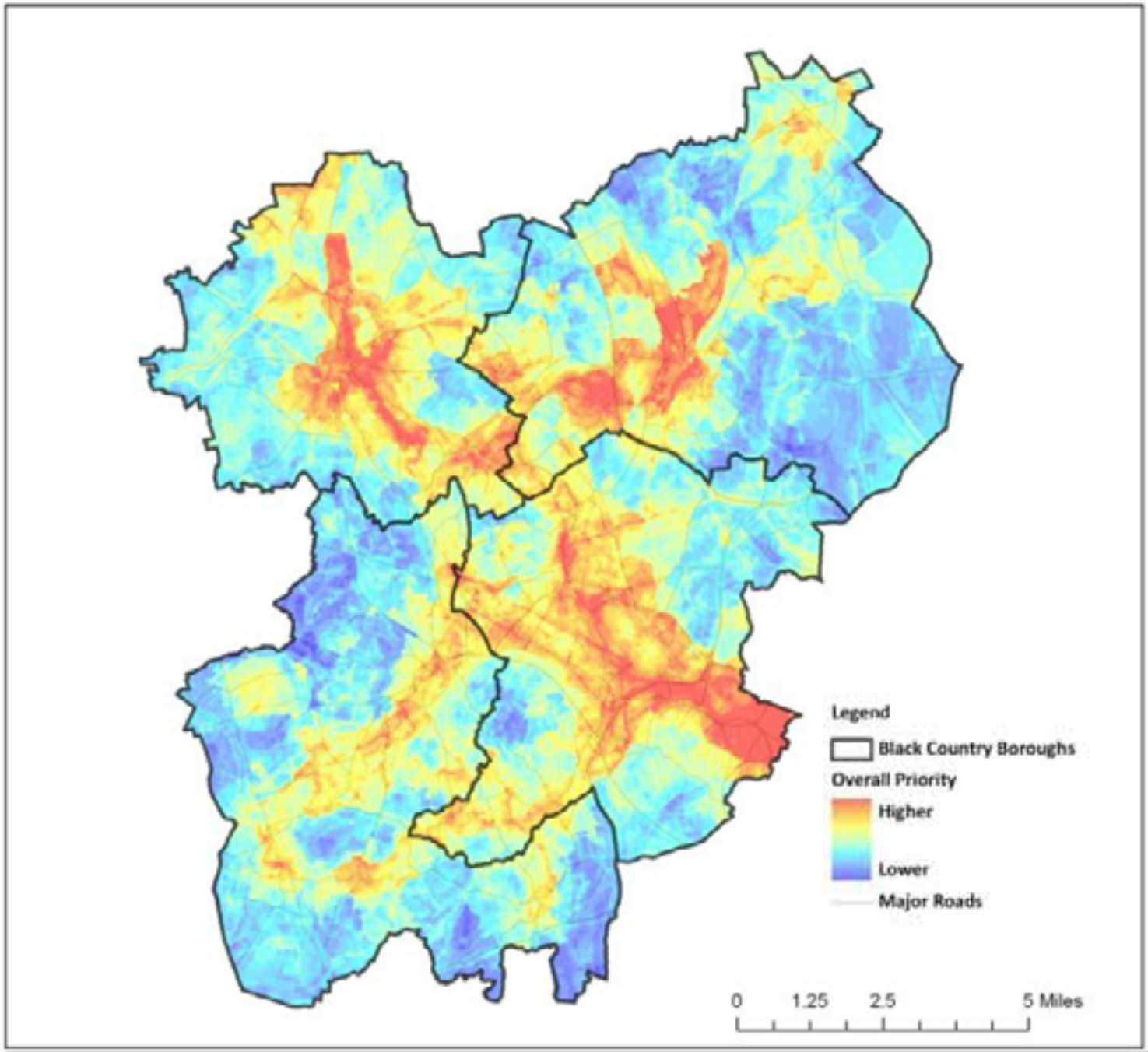
Biodiversity

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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