Renewable Energy and Sustainable Drainage

March 2015

PAS planning advisory service

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Opening exercise -

- What are your questions or concerns about renewable energy or sustainable drainage?
- What is your experience of developing energy policies, allocating sites and determining planning applications?
  - What have you found to be successful?
  - What have been your challenges?

Workshop 1:
Effective Planning for Renewable Energy

Stephen Cook
Arup

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Structure of this Workshop

- National Policy
  - Overview
  - Assessing renewable energy capacity
  - Case study
- Energy Masterplanning
  - Why?
  - How does it fit with spatial planning?
  - Case study
- Local Plans
  - Successes and challenges

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National Policy

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National Planning Policy Framework (NPPF)

Paragraph 93:

"Planning plays a key role in helping shape places to secure **radical reductions in greenhouse gas** emissions, minimising vulnerability and providing resilience to the impacts of climate change, and **supporting the delivery of renewable and low carbon energy and associated infrastructure**"

Paragraph 97:

"To help increase the use and supply of renewable and low carbon energy, local planning authorities should **recognise the responsibility on all communities** to contribute to energy generation from renewable or low carbon sources."

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Planning Practice Guidance

- Local and neighbourhood plans should consider opportunities for RE & LC developments
  - Site allocations (e.g. for wind resource areas)
  - Criteria-based policies
- Specific guidance for different types of RE:
  - for biomass, appropriate transport links,
  - for hydro-electric power, sources of water,
  - for wind turbines, predicted wind resource, considerations relating to air safeguarding, electromagnetic interference and access for large vehicles.

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Assessing the Capacity for Renewable Energy - Workshop

Discussion:

1. What should a renewable energy capacity assessment include?

2. How do you assess different kinds of renewables and low carbon resources?

Things to consider:
- Area typology – urban, suburban, rural, coastal
- Area features – protections, designations

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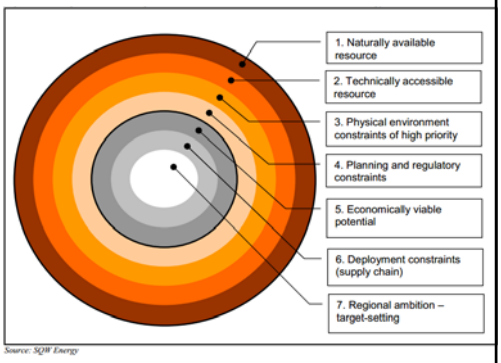
What should a renewable energy capacity assessment include?

- Potential resource
  - Natural
  - Technical
- Constraints
  - Physical
  - Environmental
  - Policy
- Economic viability



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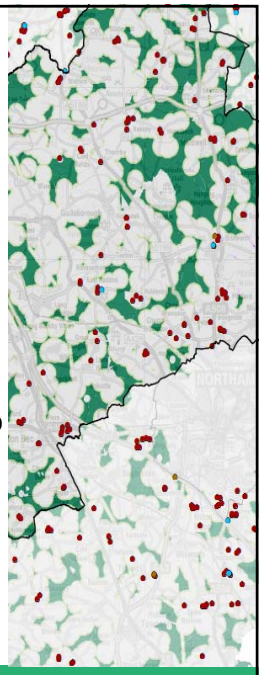
How can local planning authorities identify suitable areas for renewable and low carbon energy?

- No hard and fast rules
- Must think of technical and environmental considerations
- Community involvement should be encouraged
- Impacts of some technologies may have changed since the DCLG/DECC assessments were drawn up
- Planning policy opportunities – district heat



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Case Study : Regional evidence to local policy in Yorkshire & Humber

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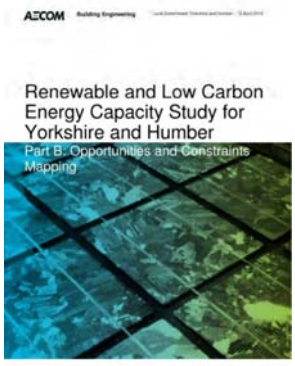
Case Study – Yorkshire & Humber

Renewable and Low Carbon Energy Capacity Study (2011)

- 3 stage methodology:
  Scoping > Opportunities & Constraints > Delivery
- Cross boundary strategic opportunities
- Strategic actions to facilitate delivery of opportunities
- Range of renewable technologies:
  - Large scale: wind; District heating & CHP; Biomass; Energy from waste; HEP
  - Small scale (microgeneration): Solar PV; Wind; Heat pumps
- Energy Opportunities Plans produced for each sub-region and LPA



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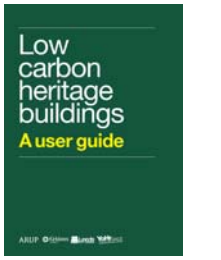
Case Study – Yorkshire & Humber

Climate Change Partnership for Yorkshire & Humber – Using regional evidence for local policy

- Leadership, Skills & Support Service - Comprehensive planning and climate change training for planning officers
- Modules on how to implement the wider Yorkshire and Humber Renewable and Low Carbon Energy Study
  - Using outputs to develop local targets
  - Identifying spatial opportunities – e.g. potential district heating areas
- Sharing local examples of best practice
- Heritage Assets and Low Carbon Renovation
  - Best practice guide



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Energy Masterplanning

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Main elements of energy masterplanning

- Demand assessment
  - Data collection on building stock and energy loads
  - Future development
  - Potential for retrofit measures
  - Model peak demand and demand profiles
- Network assessment
  - District heating sizing and routing
  - Other networks – power, gas, hydrogen?
- Supply assessment
  - Evaluate heating and power generation options
  - Consider hybrid solutions
  - Energy centre location(s)
  - Role of storage

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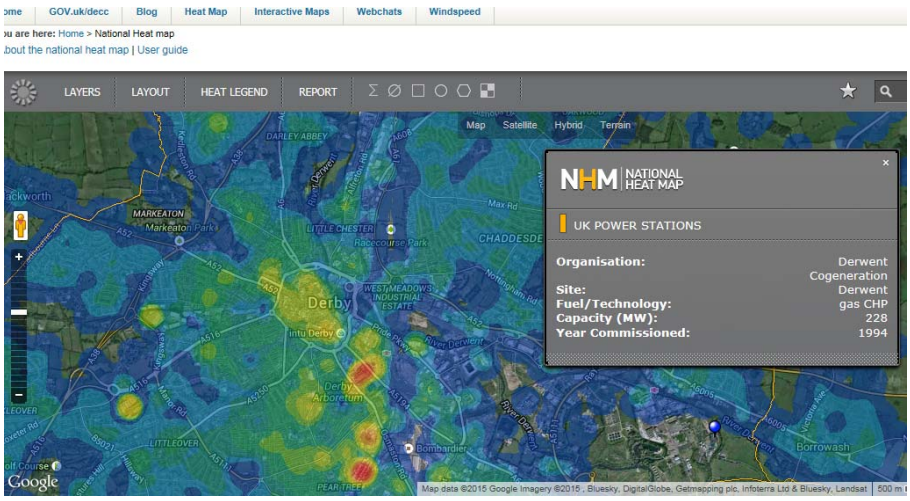
National Heat Map

http://tools.decc.gov.uk/nationalheatmap/



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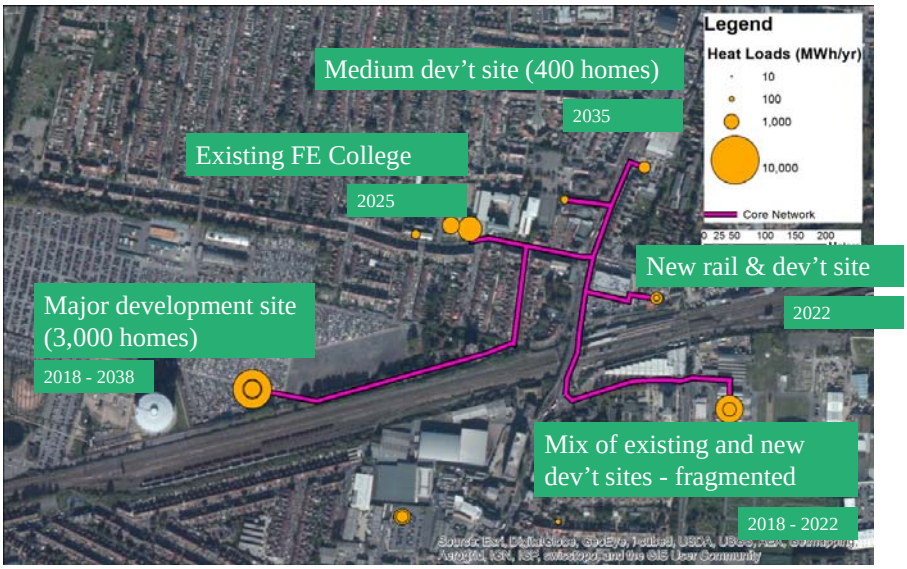

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Delivery models

- Who will fund / deliver / own / operate the required investments?
- What role(s) could local authorities adopt?
- How to fund programmes (staff, technical studies etc.)?
- How to secure capital?
- Who will take risk, who will act amid uncertainty?

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Local Plans

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Local Plans - Workshop

Discussion:

- What are the factors of success or key challenges when promoting Local Plan policies or sites for renewable and low carbon energy?

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Local Plans – Success Factors

Policy

- Prepare a robust evidence base
- Hierarchy of energy policy – 'Lean, Mean, Green'
- Avoid misinterpreting information
- Specific yet flexible
- Require an energy statement

Sites

- Clear delivery mechanisms
- Early engagement
- Link policy to objectives
- Communication with the local community, including benefits associated with renewable energy

Local Plans - Challenges

Policy

- Deliverability of schemes – balancing energy and other requirements
- Monitoring implementation - how do you know contributions from renewables are being realised?
- Political buy-in of councillors and chief executives on proposals

Sites

- Ability to demonstrate that all effects associated with noise, visual impact, flicker, harm to character of landscape can be mitigated or better still, avoided.

Workshop 2:
Responding to Renewable Planning Applications

Stephen Cook – Arup Energy Consulting

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Overview of Renewable Energy Technologies

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Onshore Wind

- Energy generation is dependent on wind speed so site selection is crucial.
- If site is right, five 2 MWe turbines in a rural area can supply more than 10,000 dwellings.
- Regional wind maps can be developed to assess the attractiveness of potential sites.
- Building mounted wind turbines have limited feasibility.
- Intermittent generation - balance with dispatchable power / demand management
- Potential impacts: visual, noise, radar
- Often opposition so important to engage community early.
- Alternative delivery models = community ownership

Ffynnon Oer Wind Farm, Wales

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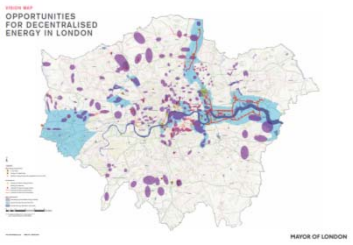
District Heating with Combined Heat and Power

- DH networks are expensive - usually only commercially viable in higher density areas.
- 3 MWe natural gas-fired CHP generation can supply the base load of more than 6,000 dwellings.
- Energy maps can be developed to identify those areas suitable for DH.
- Combustion engine either gas or biofuel (so low carbon/renewable source).
- Government buildings can lead to creation of DH network by acting as ‘anchor loads’.
- Establish long term vision for network to enable future developments to connect.
- Potential impacts: visual (flue), noise, air quality

http://www.pfmonthenet.net/article/68674/Exclusive-interview-with-Juergen-Kulka-of-Cofely.aspx

Olympic Park Energy Centre, London



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Biomass

- Burning sustainable woodfuel – in new build, coal conversions/co firing. Government support now restricted.
- Support remains for Combined Heat and Power (CHP) remains – using woodfuel or wastes.
- A 30 MWe plant can provide the needs of around 40,000 dwellings annually.
- Benefits:
  - Feedstocks abundant, potentially cheaper than fossil fuel, and less susceptible to price fluctuations
  - Reduce local landfill and improve
  - Lower emissions than gas/coal/oil
  - Despatchable power, not intermittent
  - continuous source of energy – either feed into DH network or the grid.
- Potential impacts: visual (flue), noise, air quality.
- Energy policy can support objectives on other policies: waste, heat poverty, industry/business development and employment policies

http://www.building.co.uk/hdp-designing-major-biomass-power-plant-near-sheffield/5028471.article

Blackburn Meadows biomass plant

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Energy from Waste

- Potential to generate electricity and heat for a DH network or to supply industrial heat.
- Can use municipal waste, tyres and clinical waste
- 150,000 tonnes of mixed waste can generate 15 MWh per annum.
- Enables / relies upon integrated local waste and energy strategies.
- Consider EfW CHP once the reduction and recycling opportunities have been exhausted.
- Potential impacts: visual (flue), noise, air quality
- Often opposition so important to engage community early.

Lincolnshire Energy from Waste

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Solar PV– building mounted and solar farms

- Solar rays are diffuse so large footprints are required – land or roof tops are potential solutions.
- Costs for solar PV are continuing to reduce.
- Array of 100 kWe solar PV can meet the electricity demand of a high-rise commercial building.
- Peak Electricity is generated in the middle of the day, and not at all at night, so need for alternative source, usually a grid connection.
- Solar panels can be integrated to buildings or provide shading for vehicles under modules.
- Need to consider over-shading and orientation of buildings
- Building occupier can take ownership of their power generation and carbon savings.
- Policy preference is for deployment on buildings and previously used or low-grade agricultural land

http://www.solarukindustryawards.com/winners/2012

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Discussion

1. What factors are involved in good decision making on planning applications for renewables?
2. What are reasonable requirements for impact assessments?
3. How can planning conditions and planning obligations be used effectively?
4. What measures can be taken to address community impact/objection?

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Recap - What factors are involved in good decision making on planning applications for renewables?

- Compliance with national and local policy
- Robust and proportionate assessment of the benefits and likely impacts
- Incorporates mitigation measures – design, construction and operation
- Evidence of engagement / involvement of community and stakeholders
- Provision of information in a standardised format to assist decision making
- Knowledgeable and engaged planning officers and members

Recap - What are reasonable requirements for impact assessments?

- Proportionate to the proposed development
- Only seeks to address the likely impacts of the scheme
- Diversity of renewables projects means a one-size fits all approach will not be relevant e.g.
  - requirements for wind different to CHP
  - site context will affect need for and nature of assessment

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Recap - How can planning conditions and planning obligations be used effectively?

Renewable energy developments

- To ensure potential effects are managed e.g. submission of detailed noise or air quality information, details of materials.
- Monitor successful implementation of schemes e.g. is x% of energy being generated by a scheme.

Renewable energy in development

- Details of renewable and low carbon systems (to confirm implementation of commitments)
- Obligation to connect to a proposed DH network

Recap - What measures can be taken to address community impact / objection?

- Early engagement and meaningful consultation
- Ensure that the community are fully aware of the benefits of a scheme and different options for maximising community benefit
- Promoting community ownership

Thank you

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