The Need for a Robust Evidence Base

Simon Power, Arup

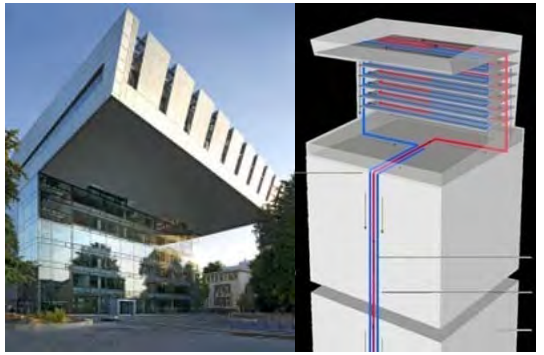
Tidal

Micro-generation

Hydro / Fall of Water

Wind

Biomass



Geothermal

Energy from Waste

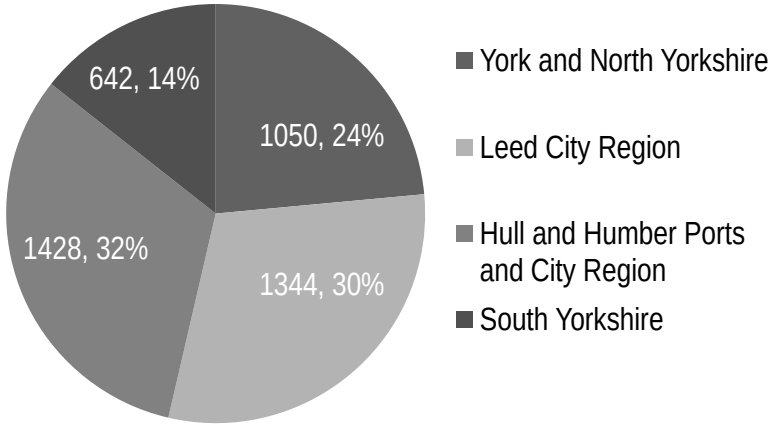
Heat Pumps

Combined Heat and Power

Commercial Wind

Opportunities

- 4,464 GWh total capacity



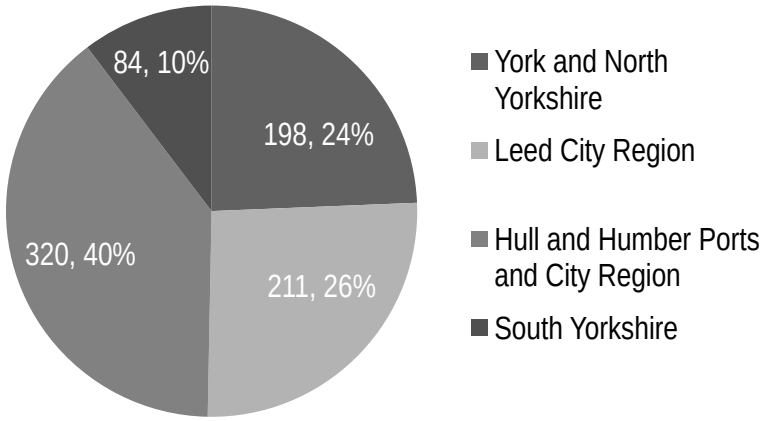
Constraints

- District Network Operator and Ministry of Defence
- Transportation of turbines / site access
- Visual and noise impact
- Topple distances

Biomass

Opportunities

- 813 GWh total capacity
- 312 GWh heat / 501 GWh electricity



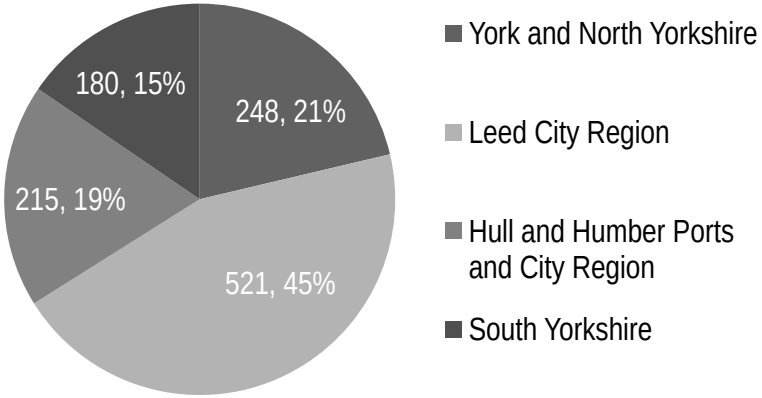
Constraints

- Sustainable fuel supply
- Storage space
- Air quality
- Transportation

Energy from Waste

Opportunities

- 1,164 GWh total capacity
- 345 GWh heat / 819 GWh electricity



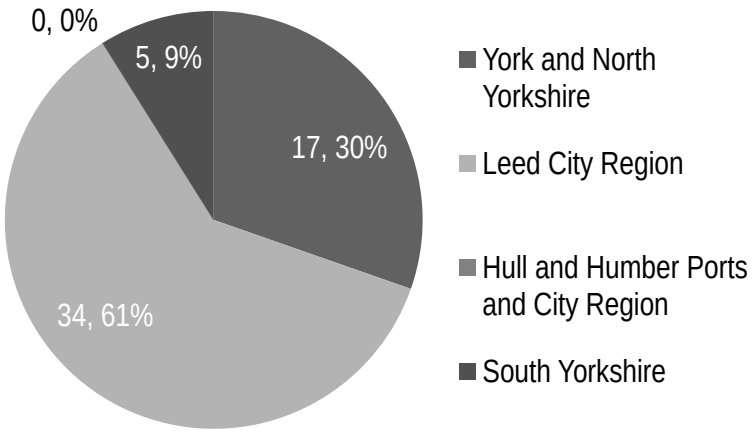
Constraints

- Sustainable fuel supply
- Air quality
- Transportation

Hydropower

Opportunities

- 56 GWh total capacity



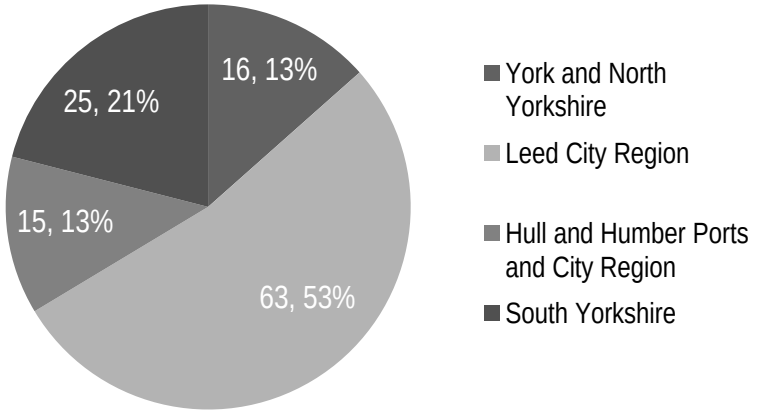
Constraints

- Fish movements
- Land ownership
- Increasing flood risk / impairing flood defences
- River flow rates

Micro-generation

Opportunities

- 1,073 GWh total capacity



Constraints

- Network capacity
- Land designations – conservation and heritage
- Building / site capacity

The National Heat Map

Aaron Gould

Heat Strategy and Policy, DECC

6 March 2012

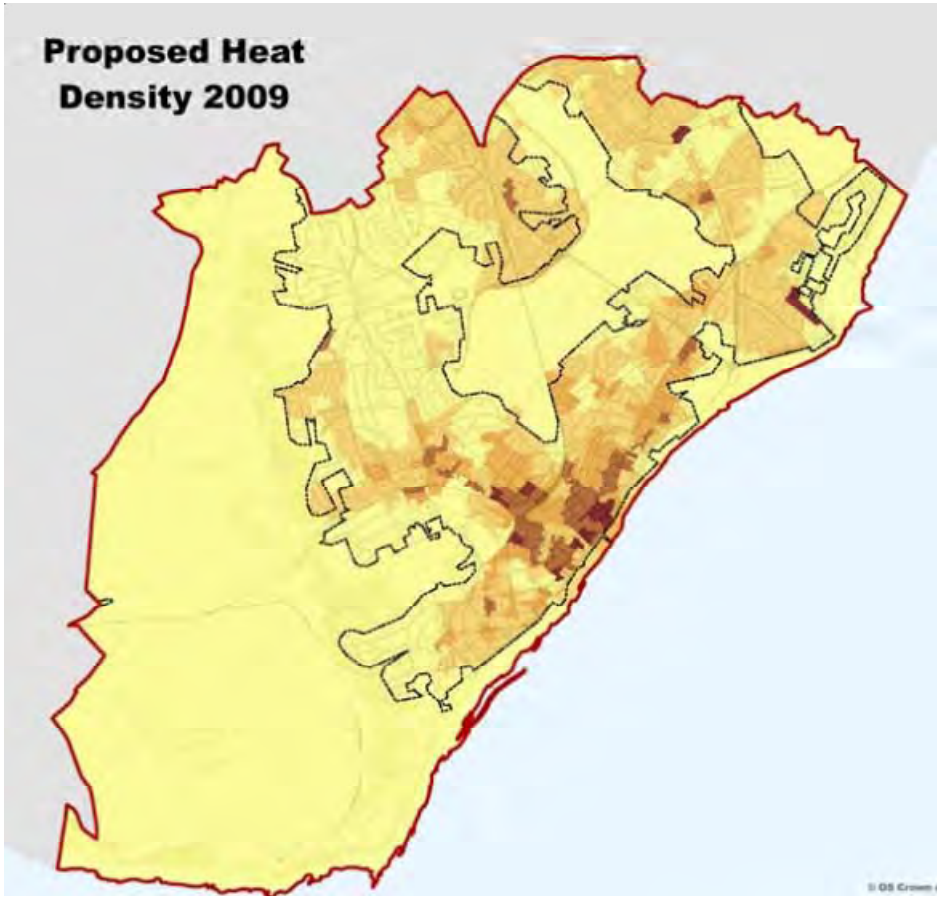
Agenda

- Why heat maps are so great
- Why a National Heat Map is even better
- Sneak preview
- What happens next

Why heat maps are so great

DEPARTMENT OF ENERGY & CLIMATE CHANGE

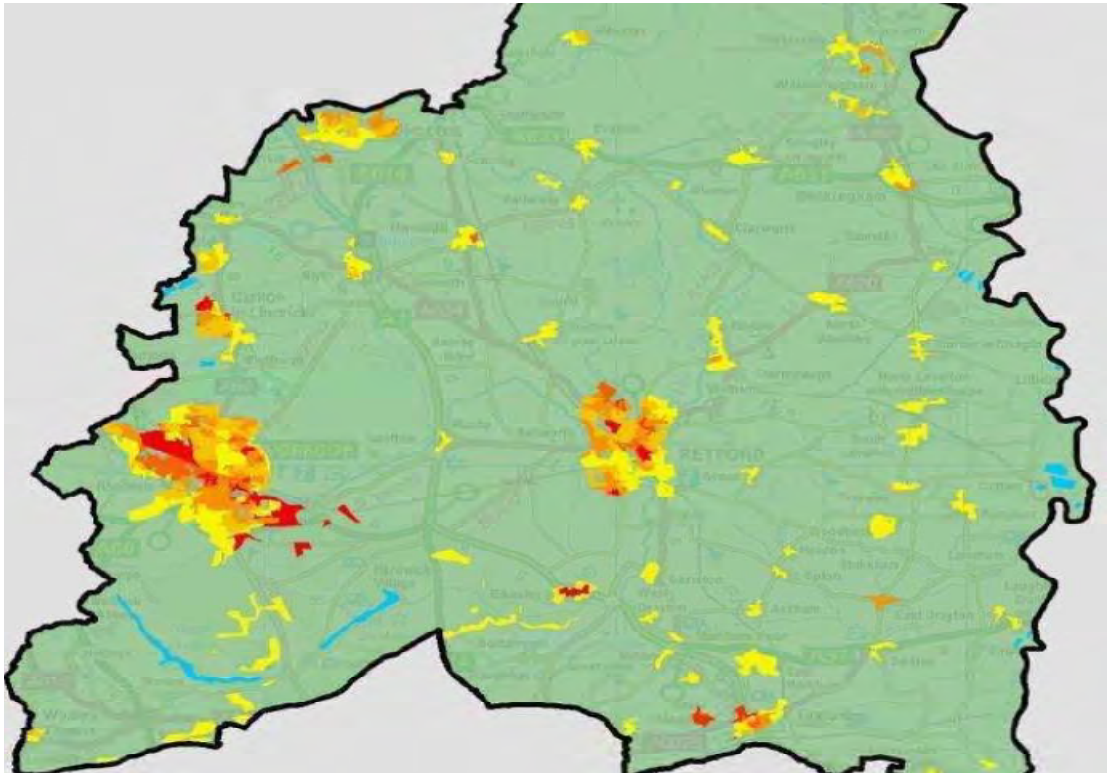
"Low carbon heating is circumstantial"



- Different buildings have different circumstances:
  - Heat demand density
  - Potential heat sources
  - Existing heat networks
  - Other buildings in the area
- This makes low carbon heating a **very** local issue

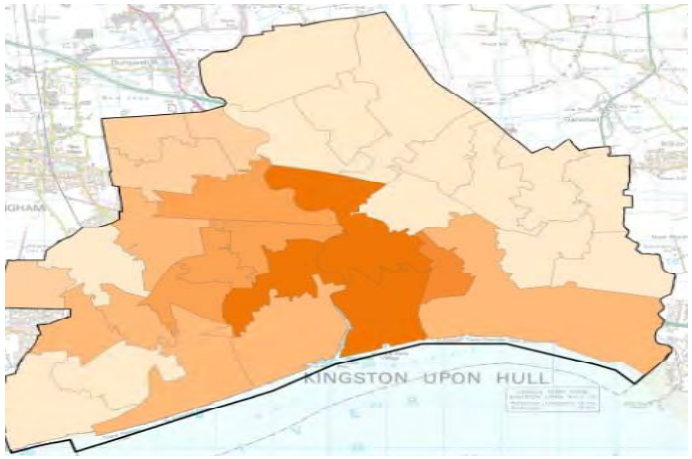
Why heat maps are so great

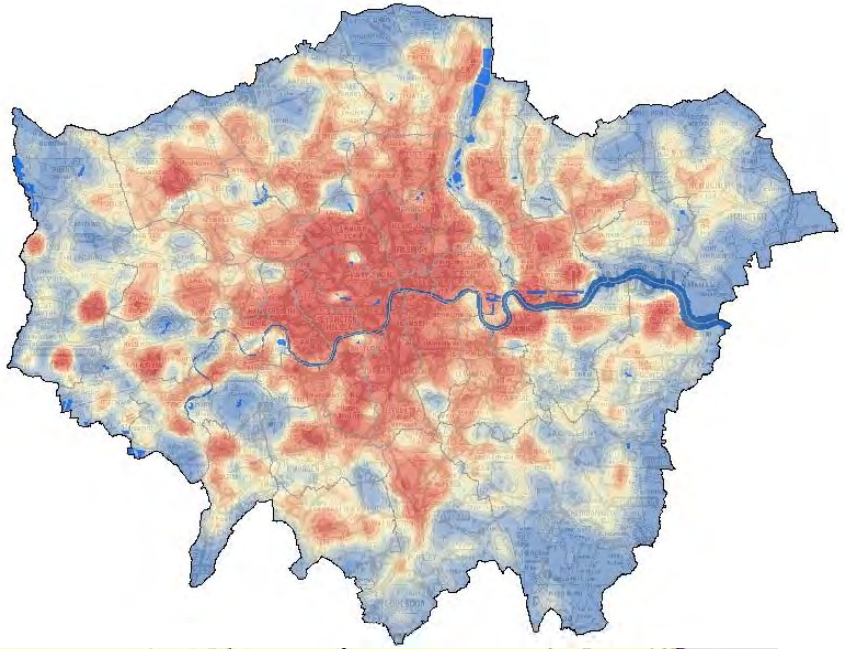
- A heat map is a spatial plan of heat demand density. Starting point to developing detailed Energy Master Plans
- With info on building type, heat supply and physical constraints...
- Planners can see focus areas with the highest potential for district heating network development
- Planners can see where other technologies are more suitable

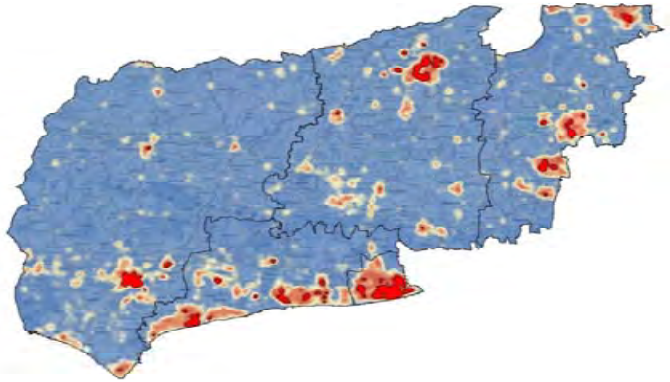


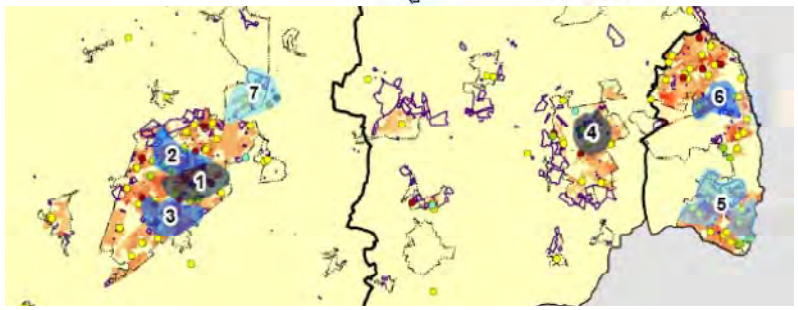
Why heat maps are so great

They have been used effectively by: North Hampshire, Eastbourne, Cornwall, Stockport, Bassetlaw, Harrogate, Hull, Peterborough. West Sussex. Greater London...





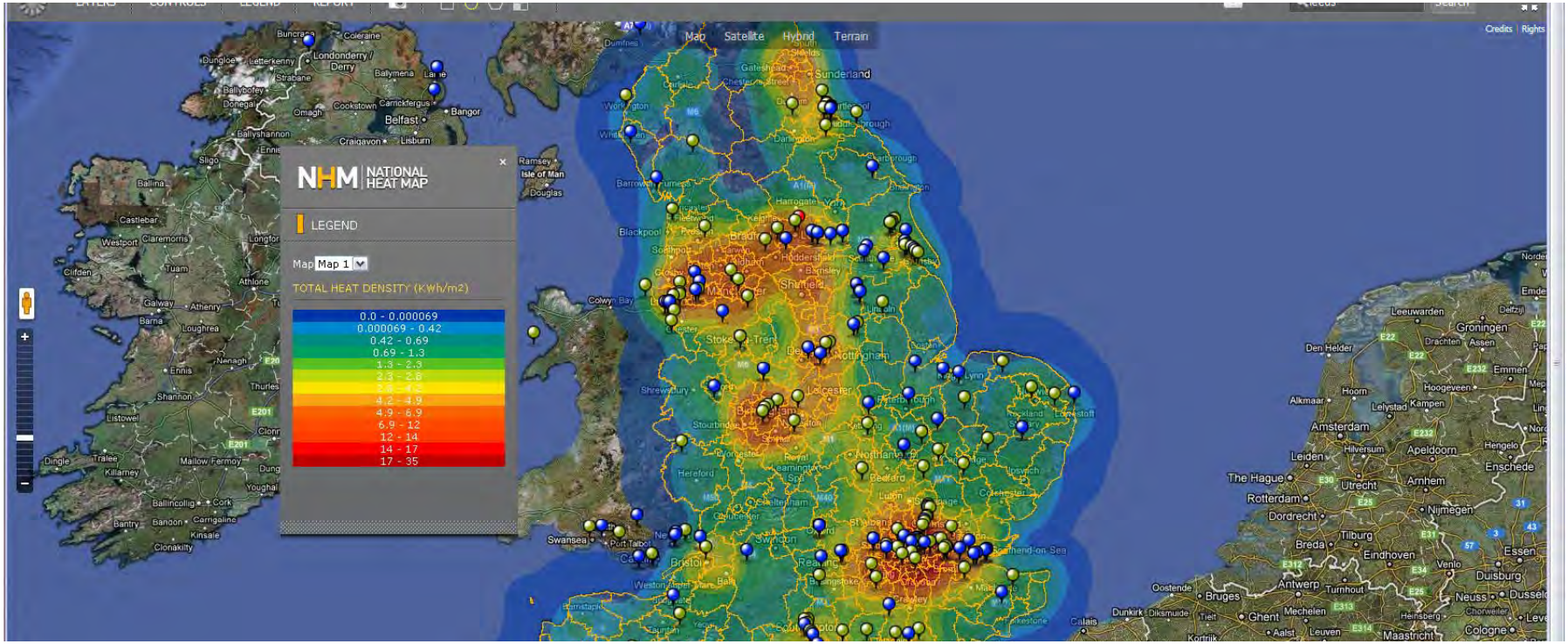




NHM | NATIONAL HEAT MAP

DEPARTMENT OF ENERGY & CLIMATE CHANGE

DECC has developed a National Heat Map that shows heat demand density for the whole country.



The map is a comprehensive database of heat demand density, equipped with a range of tools to help developers and planners identify priority areas for low carbon heat projects.

BENEFITS

Why a national heat map?

- Value for money
  - £10-60k per LA
  - £4-20 million for England (piecemeal)
  - £150,000 National Heat Map

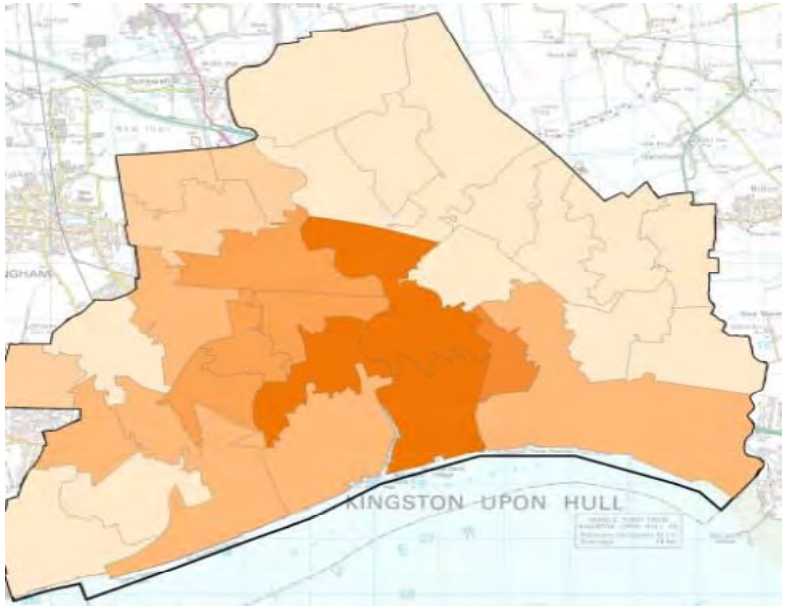
- In reality, many local authorities would not undertake mapping exercises

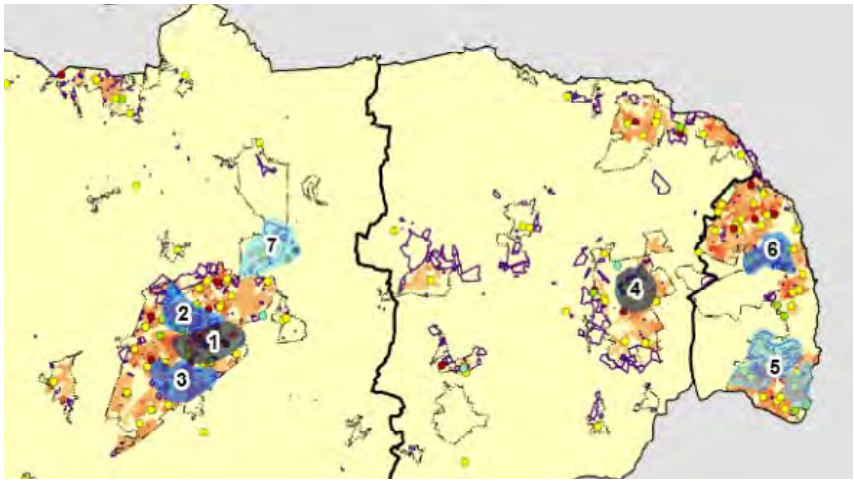
- Finer granularity than any other map (individual buildings)

- Groundbreaking model, national datasets

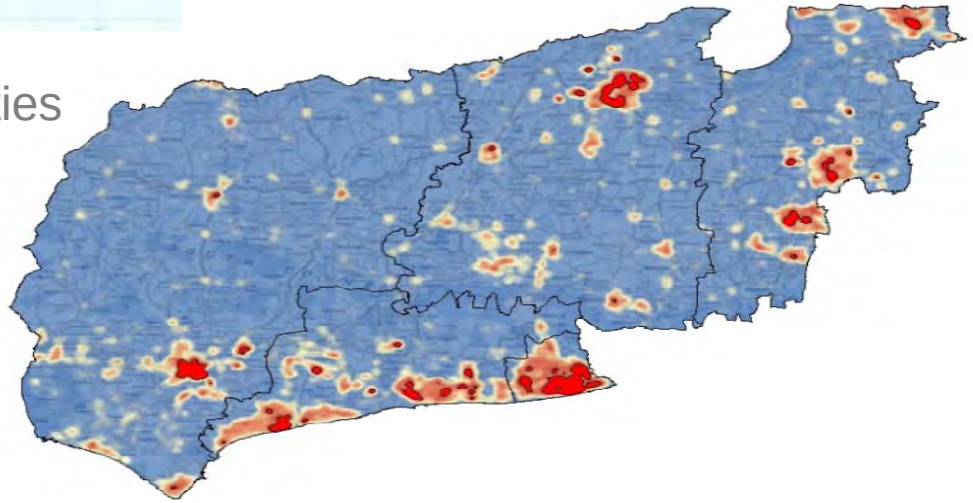
BENEFITS

DEPARTMENT OF ENERGY & CLIMATE CHANGE



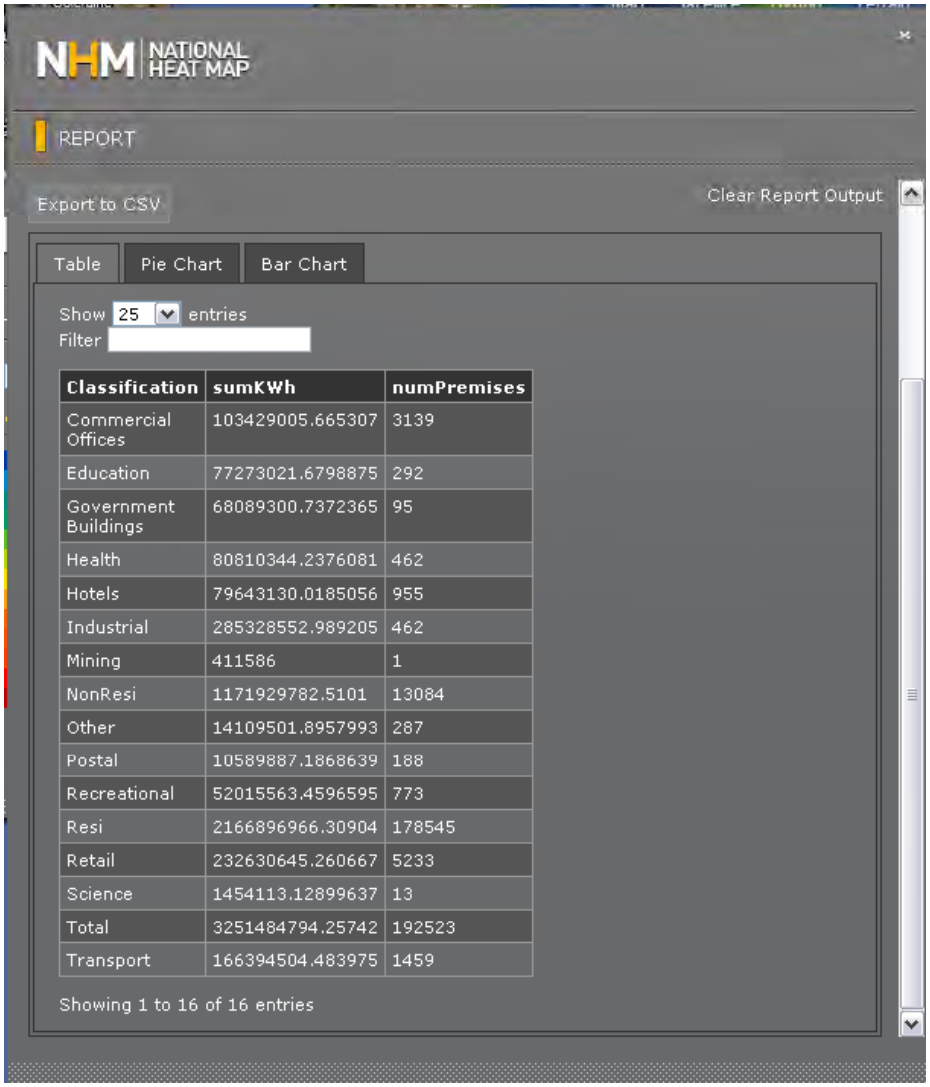


- Cross border opportunities
- Consistent mapping



FUNCTIONS

- Generate reports on selected areas to give you accurate heat demand information and sectoral breakdown

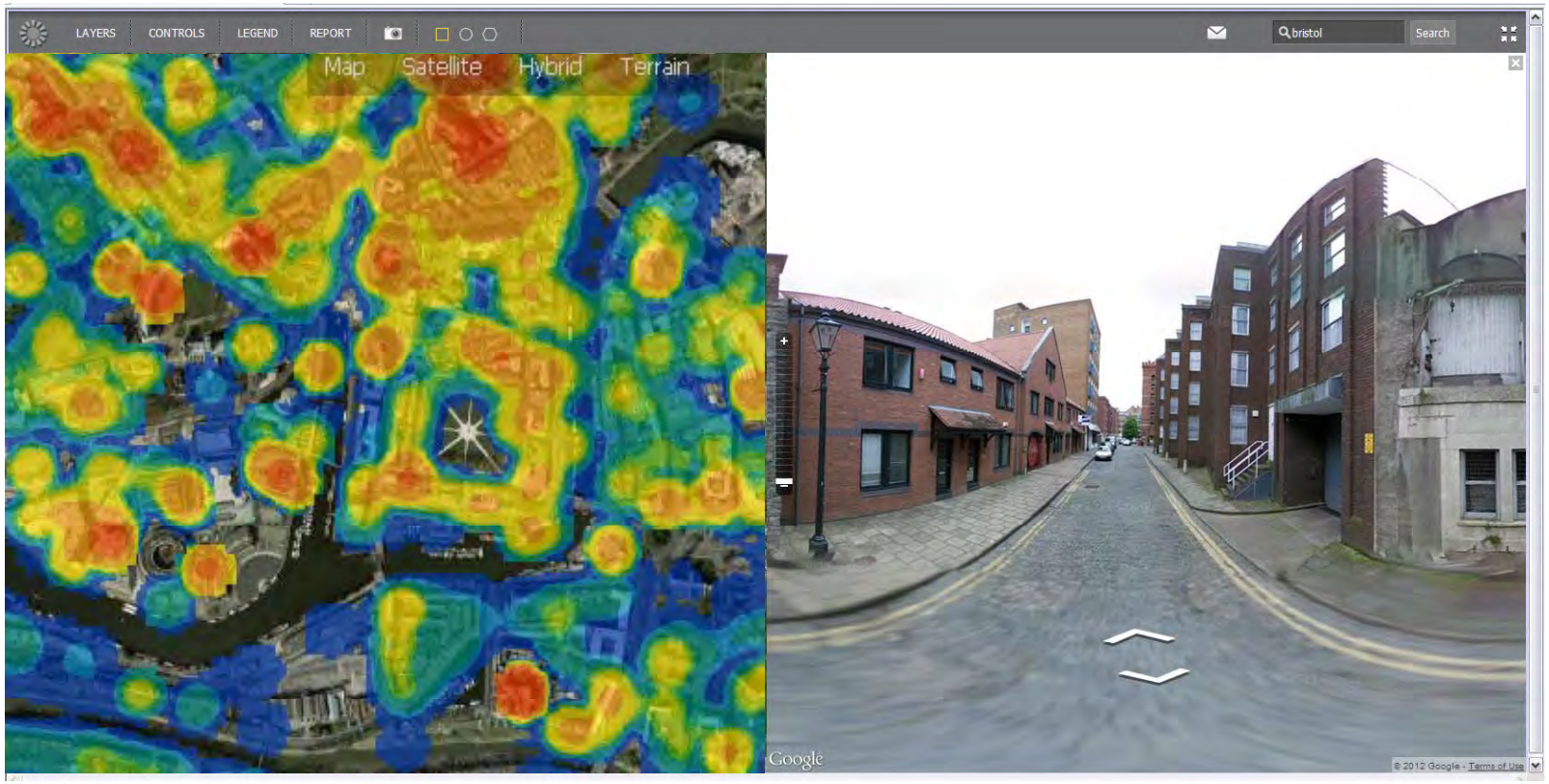


Classification	sumKWh	numPremises
Commercial Offices	103429005.665307	3139
Education	77273021.6798875	292
Government Buildings	68089300.7372365	95
Health	80810344.2376081	462
Hotels	79643130.0185056	955
Industrial	285328552.989205	462
Mining	411586	1
NonResi	1171929782.5101	13084
Other	14109501.8957993	287
Postal	10589887.1868639	188
Recreational	52015563.4596595	773
Resi	2166896966.30904	178545
Retail	232630645.260667	5233
Science	1454113.12899637	13
Total	3251484794.25742	192523
Transport	166394504.483975	1459

FUNCTIONS

DEPARTMENT OF ENERGY & CLIMATE CHANGE

- Zoom in on particular areas to examine individual buildings, and use the street view function to help identify building types
- Split screen function to compare areas, or view an area in different ways



FUNCTIONS

DEPARTMENT OF ENERGY & CLIMATE CHANGE

- Supports business case for feasibility studies
- Evidence base to jump start feasibility studies
- Generate discreet URL to save your research

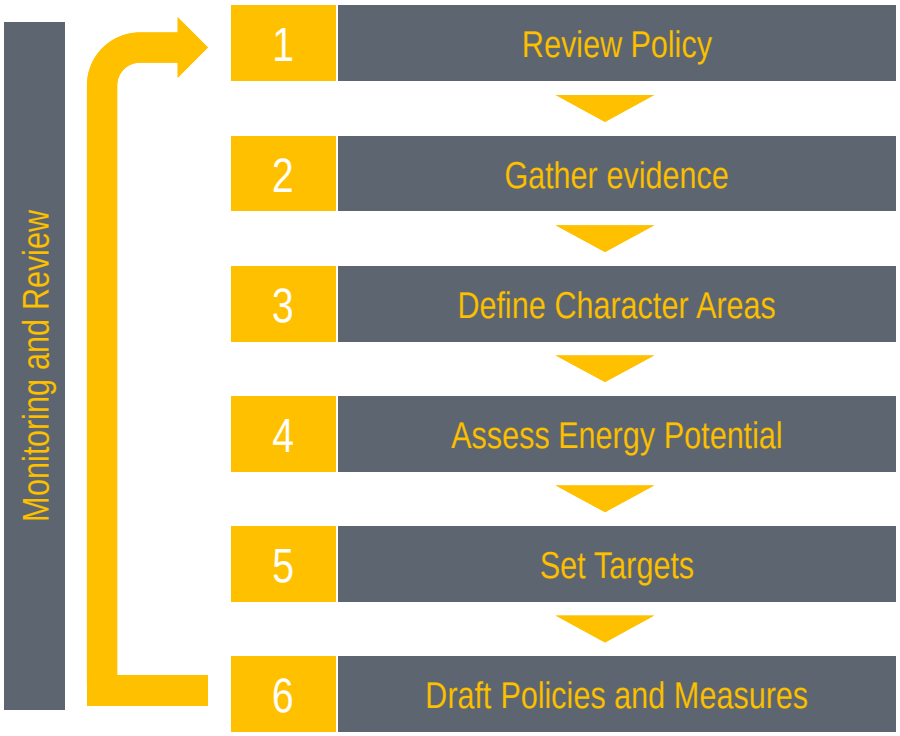
NEXT STEPS

- Final tweaks
- Launch – weeks, not months!
- DECC Heat Strategy
- UP-RES Course (BRE), A 3-Day Course on District Heating with Renewable Energy

Policy Making, Policy Options, Delivery Plans and Targets

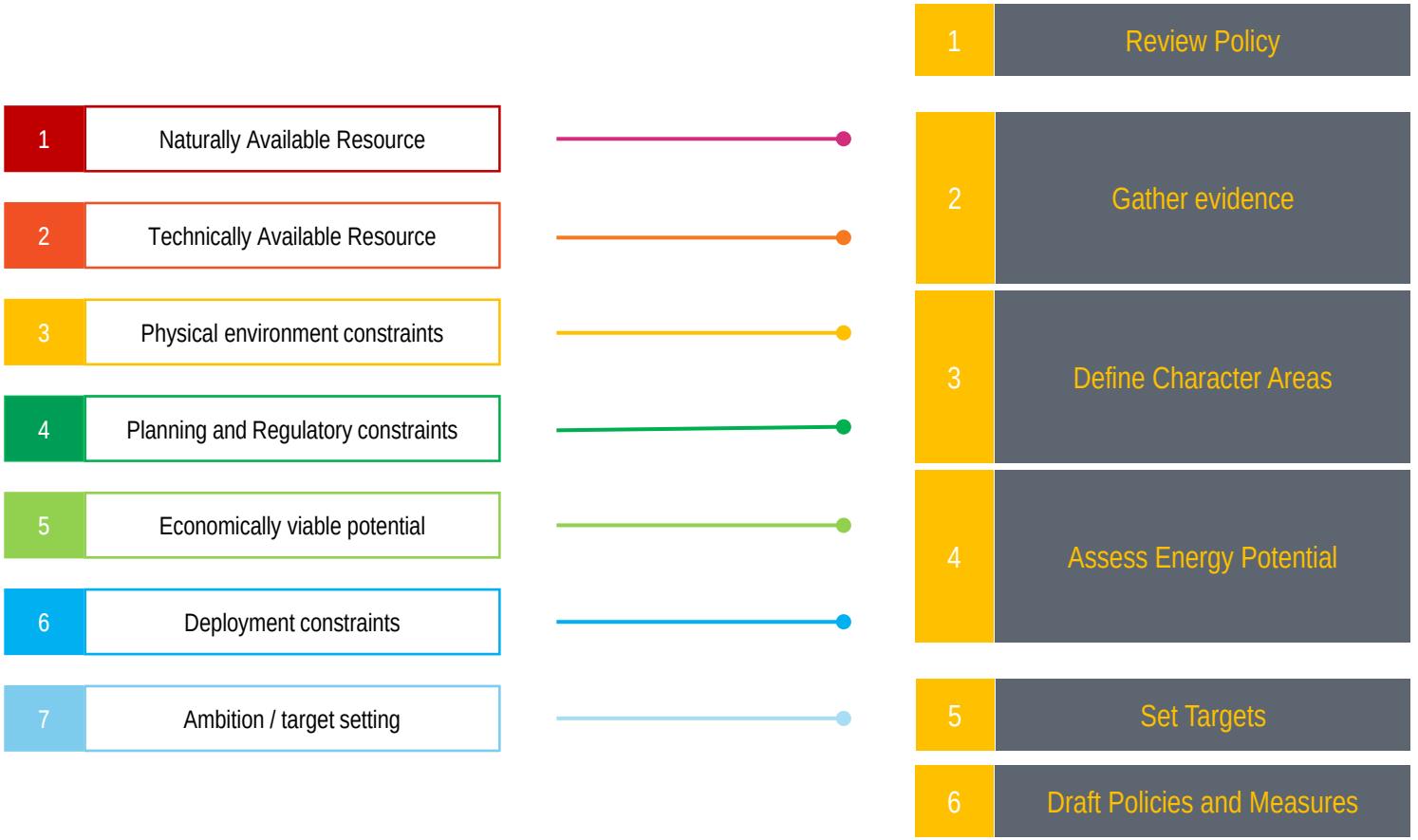
Tom Bridges & Simon Power, Arup

LDD Development Process



Source: Yorkshire & Humber Renewable Energy Toolkit

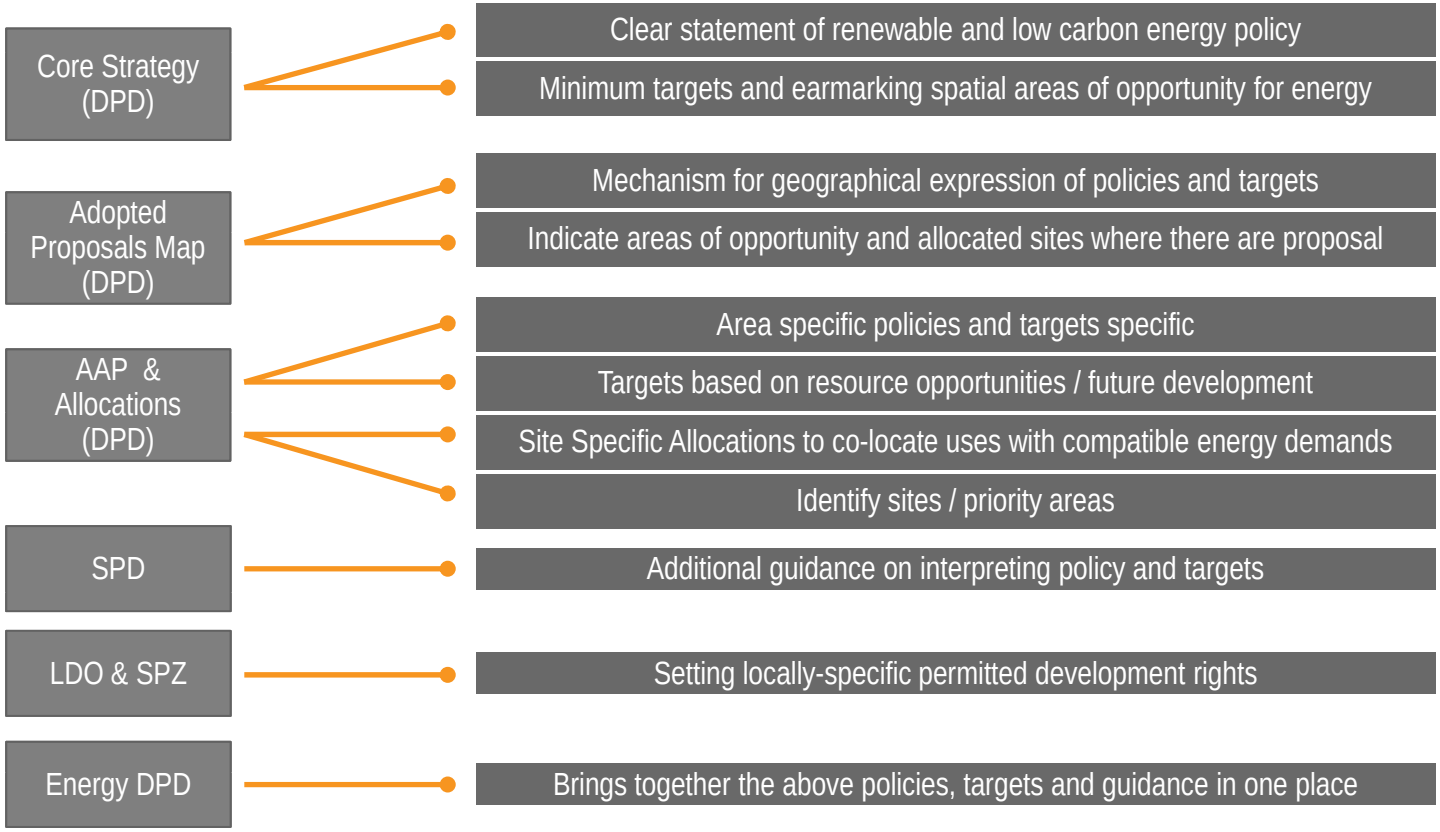
DECC Methodology & LDD Process



Tests of Soundness

Soundness Test	Implications
Justified • robust evidence base • most appropriate strategy	Consider all available up-to-date evidence, including regional study. Departures from direction suggested by evidence need to be justified. Stakeholder involvement.
Effective • Deliverable • robust infrastructure delivery planning • no regulatory of national policy barriers • delivery partners buy in • cross-boundary coherence • Flexible • robust monitoring framework	General presumption in favour of renewable energy. Constraints should not be absolute. Allow flexibility on type of renewable energy. Policies should not undermine viability of other development. Ensure integration with wider policies on infrastructure. Consider cross-boundary opportunities and impacts. Build in flexibility – fast changing context for technology and funding. Framework for monitoring deliver and impacts.
Consistent with National Policy	Need to be in consistent with PPS1 supplement, PPS22 and National Policy Statement. Any departures need clear and convincing reasoning to be justified.

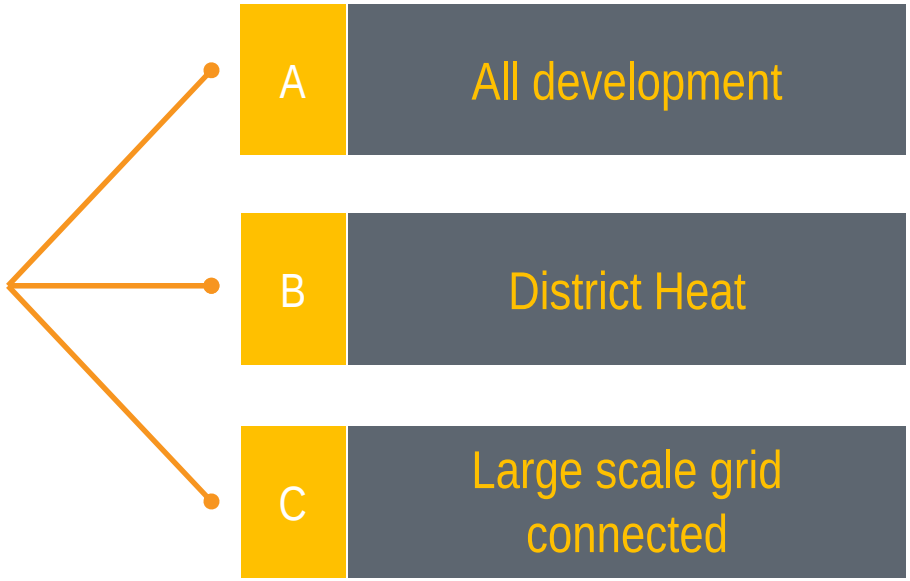
The role of Local Development Documents



Policy Options

Policy title: Low carbon development and renewable energy

Three main streams



Stream A: All Development

	Using contemporary Building Regulations standards as the baseline for carbon (CO2) reduction standards, all applicants for development (subject to exclusions set out in the supporting text) should seek to achieve additional reductions in carbon emissions associated with the development. How improvements are achieved should be set out in an energy statement as part of the planning application..	

Stream A: All Development

The energy statement will quantify improvements to the CO2 emissions savings over the required baseline standard associated with the following:

- All energy efficient building design solutions that ensure future occupiers will have reduced energy requirements; and
- Energy supply from decentralised low and zero carbon sources.

Development not achieving improvements above the baseline will not be approved unless applicants can demonstrate that it is not feasible or viable to do so.

Stream B: District Heating

Where a DH network is in - or scheduled to be in - place, developers will be required to enter into a commercially acceptable connection agreement, as part of a planning obligation.

Where it is not considered to be viable or feasible to connect to an existing or scheduled DH network, and where exceeding baseline energy targets is shown to be unfeasible and or unviable, applicants will be required to make a financial contribution towards the development and operation of a local DH network where technically and commercially feasible plans are in place.

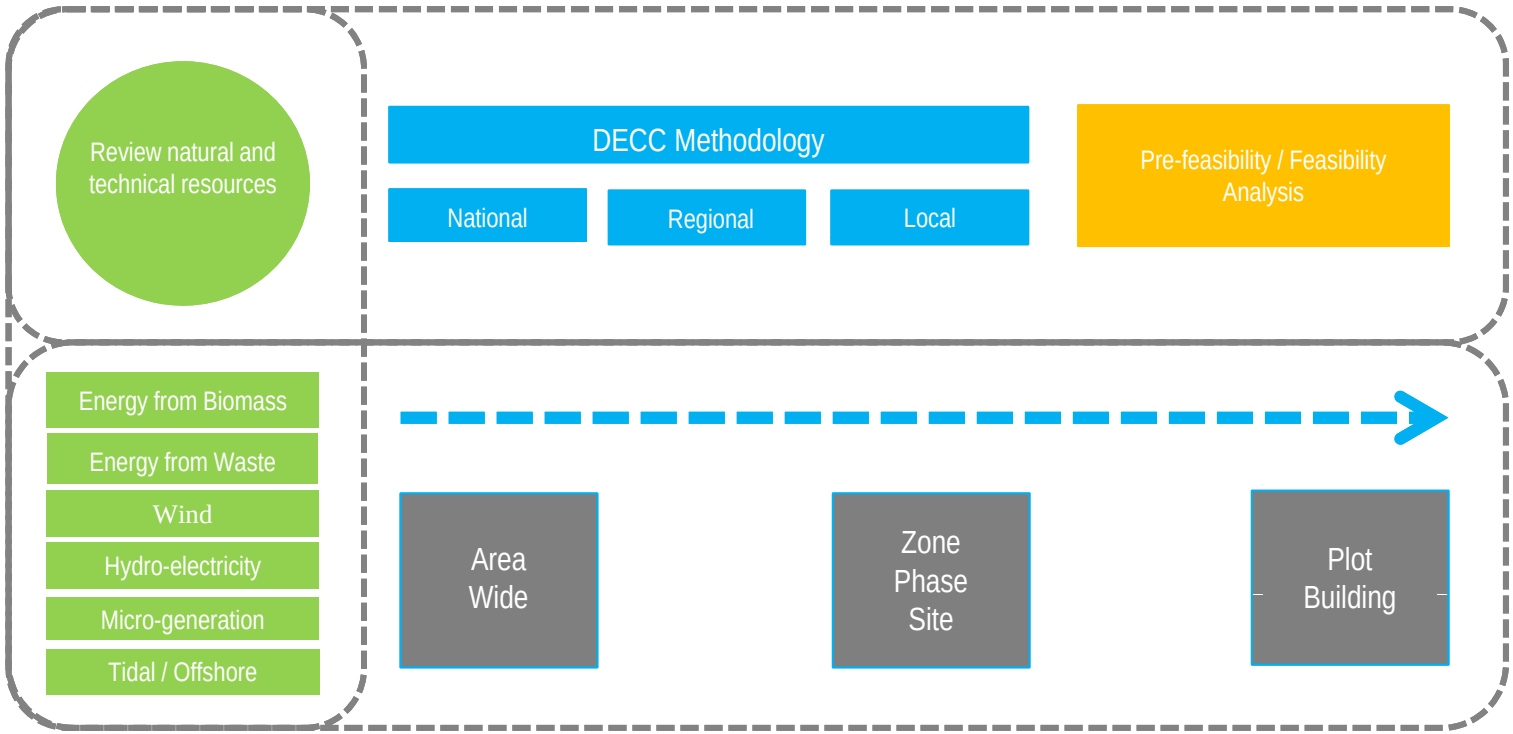
Stream B: District Heating

Within 1,000m of an identified priority zone, but where a network is not yet in place, development proposals will be required to make provisions to enable future connectivity in terms of site layout, heating design and site-wide infrastructure design, where there is a clear prospect of a viable and realistic scheme coming forward.

Part C: Large scale grid connected energy

Subject to successful assessment and mitigation of impacts of development proposals, the Planning Authority will seek to support proposals for grid-connected renewable energy infrastructure and associated infrastructure, including, but not limited to wind, solar PV and biomass CHP.

Setting Targets



Spatial Designation & Targets

Group Exercise

Questions and Panel Discussion