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The IET Future for Urban Heat Debate

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Energy Technologies Institute

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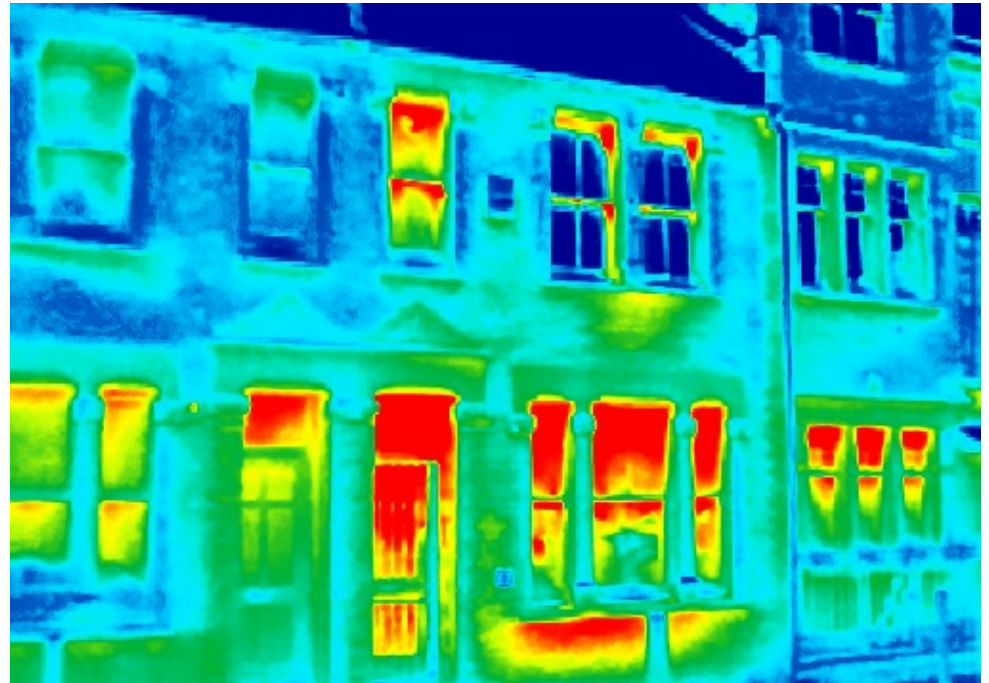
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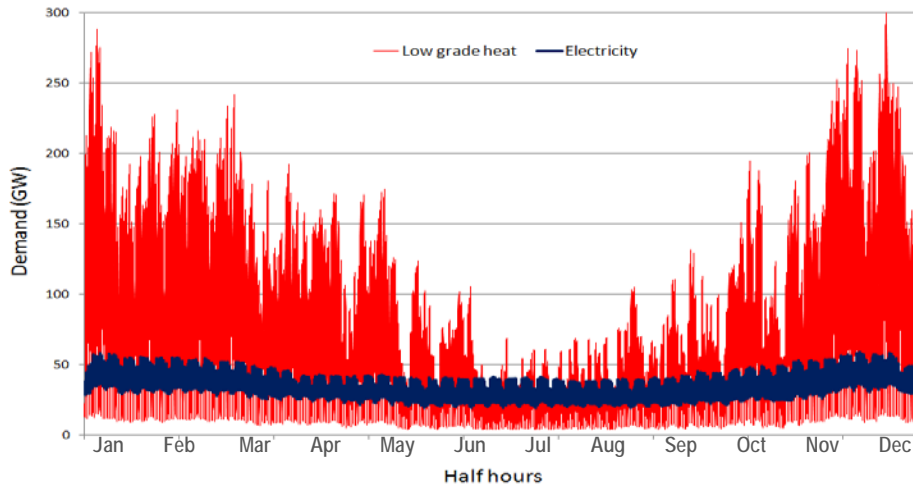
Heat and the Smart Energy System

1. Why is Heat Important?
2. Meeting National Emissions Targets
3. Developing Local Infrastructure
4. National Targets Get Local

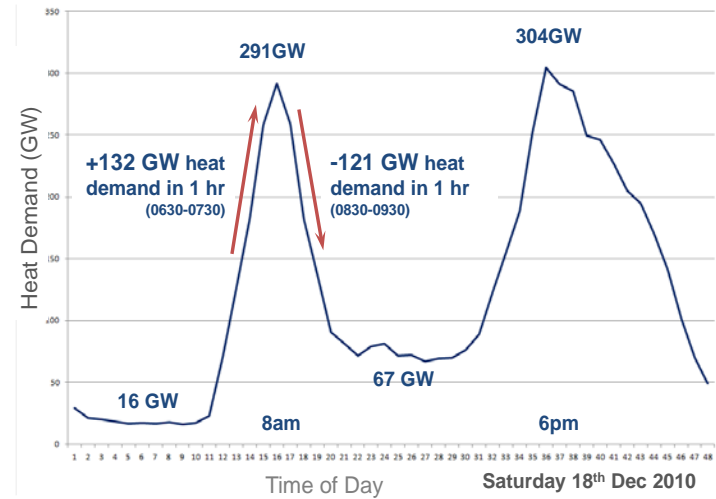




Why is Heat Important?



Source: Imperial College (2011)



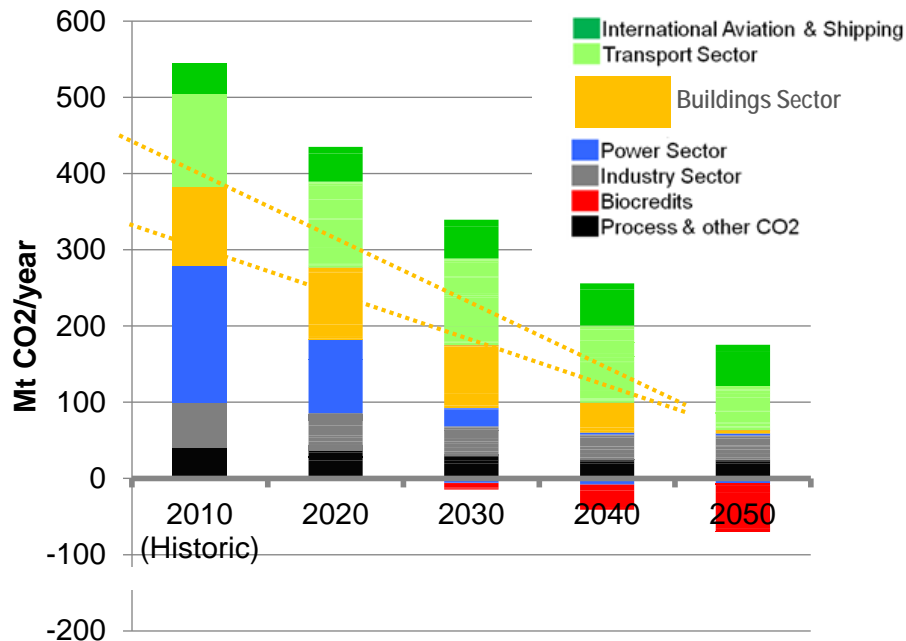
132GW/hr = 36MW/s
 Dinorwig = 108MW/s
 and 1.32GW total



Meeting National Emissions Targets

'Systems' view shows the need to decarbonise buildings – but efficiency measures alone are not effective

Net CO2 Emissions



DB v3.3 / Optimiser v3.3



Buildings Efficiency Improvement

Carbon Reduction Package	% CO2 Saving	Cost per Dwelling
Retrofit	33%	£7,500 - £21,000
Retrofit Plus	45%	£15,000 - £31,000

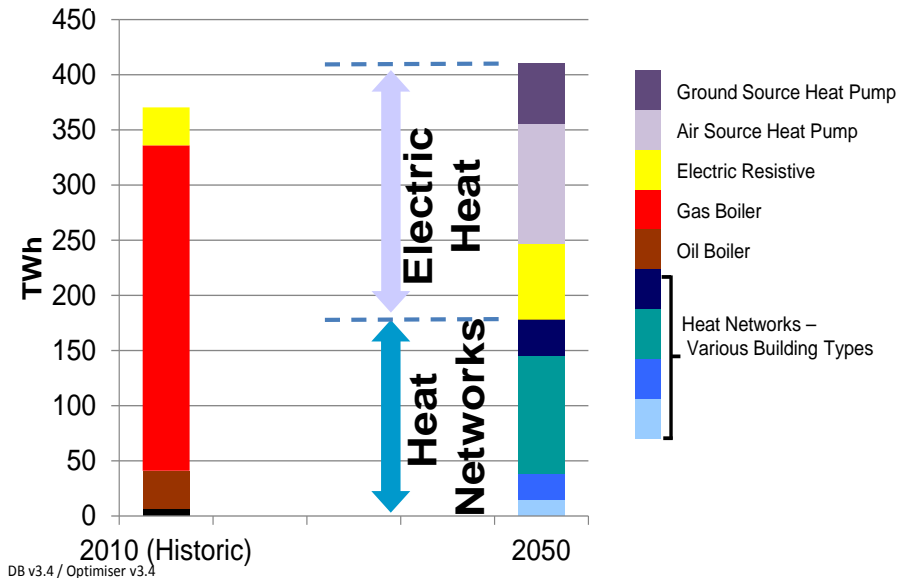
= £b x 00,s - for 26 million homes...and not meet the target



Meeting National Emissions Targets

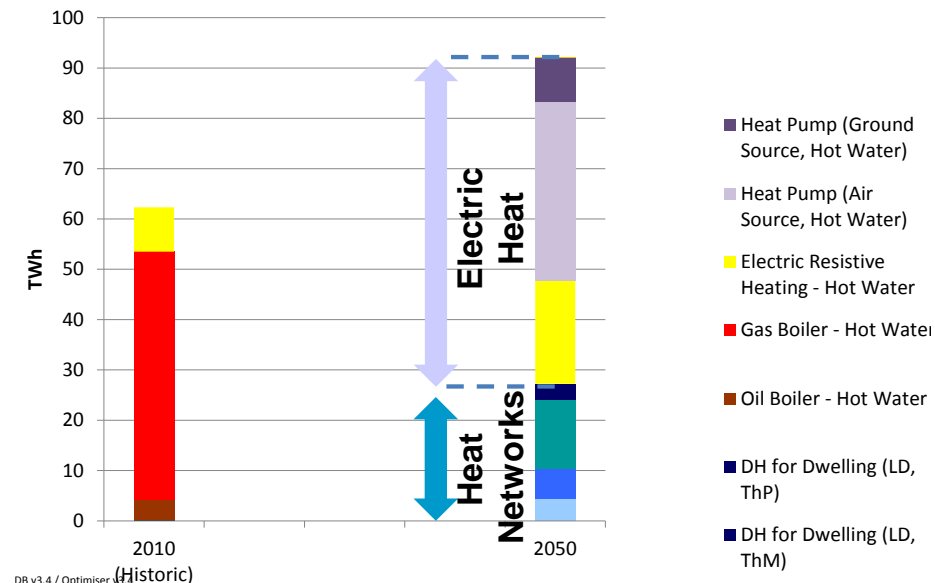
Two principal pathways for heat - district heat networks and electricity... with distinctly different infrastructure development needs

Space Heat



DB v3.4 / Optimiser v3.4

Hot Water

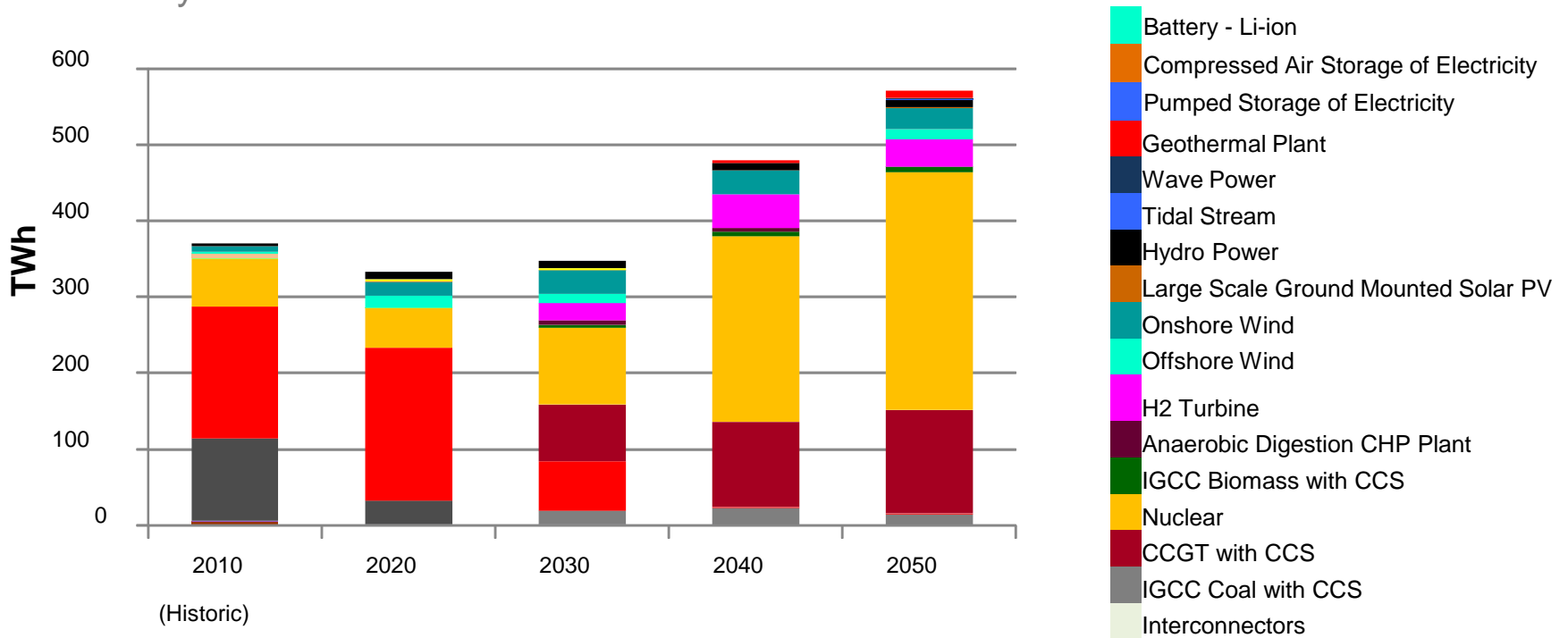


DB v3.4 / Optimiser v3.4



Meeting National Emissions Targets

Electricity Generation



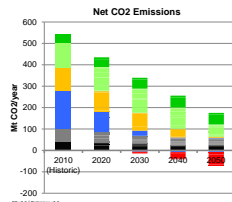
DB v3.3 / Optimiser v3.3



Developing Local Infrastructure

Strategic, spatial plans for asset development are essential

National Targets



Power Network Systems Architecture



Electricity Networks

Handling a Shock to the System

NET technical report on the whole system challenges facing Britain's electricity network



Power Networks Joint Vision

Power Network Investment



Transform Model

Integrating smart grids with existing networks EA Technology's Transform Model® provides electricity distribution companies with a practical tool which enables them to optimise the...

Energy System Strategy

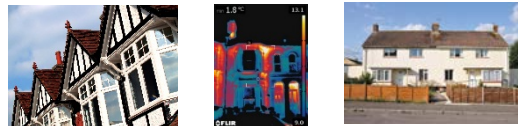


Consumer Requirements
Consumer Products
Strategic Spatial Plans

Economic Benefits

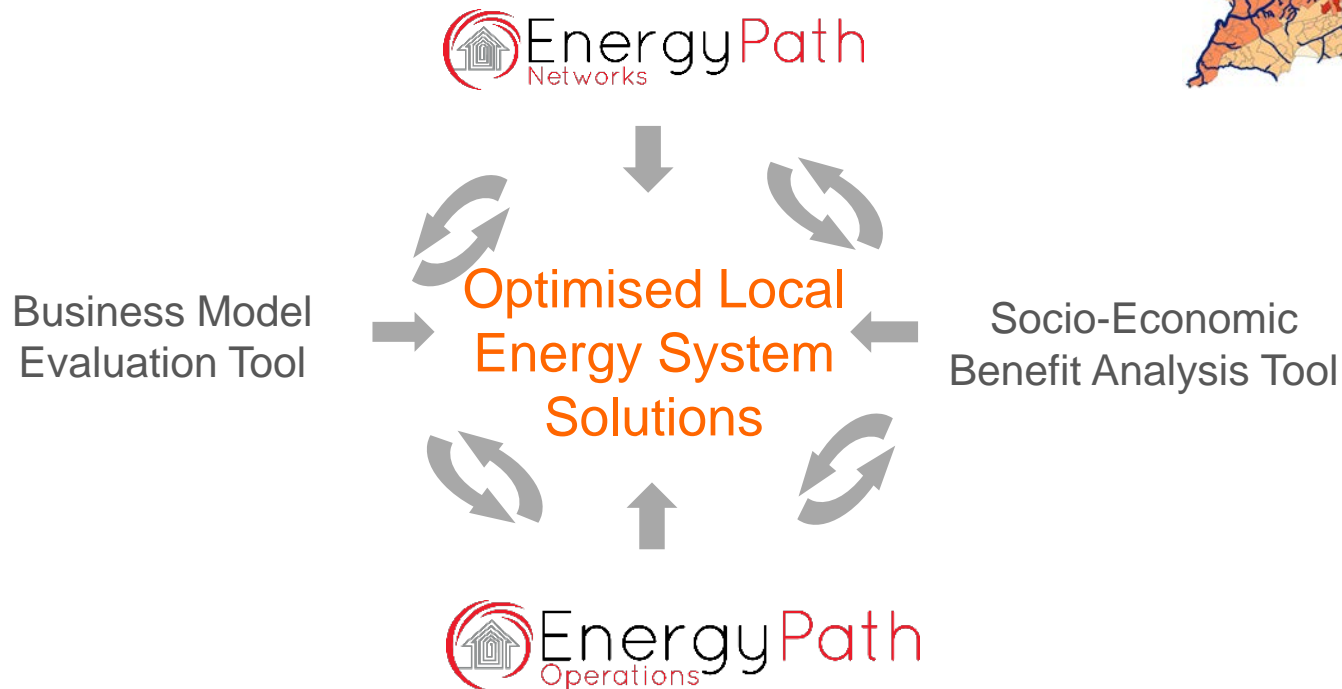
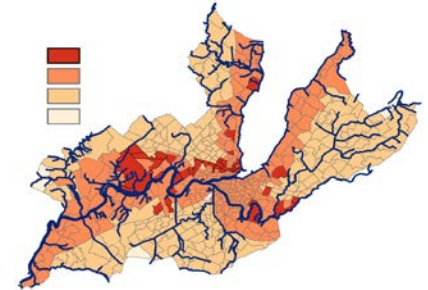
Big infrastructure questions... What? Where? and When?

Local Projects





National Targets Get Local – Transition Tools for Strategic Spatial Planning

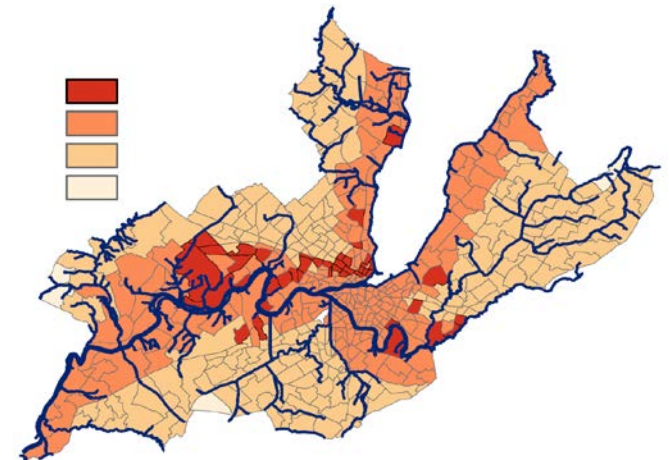
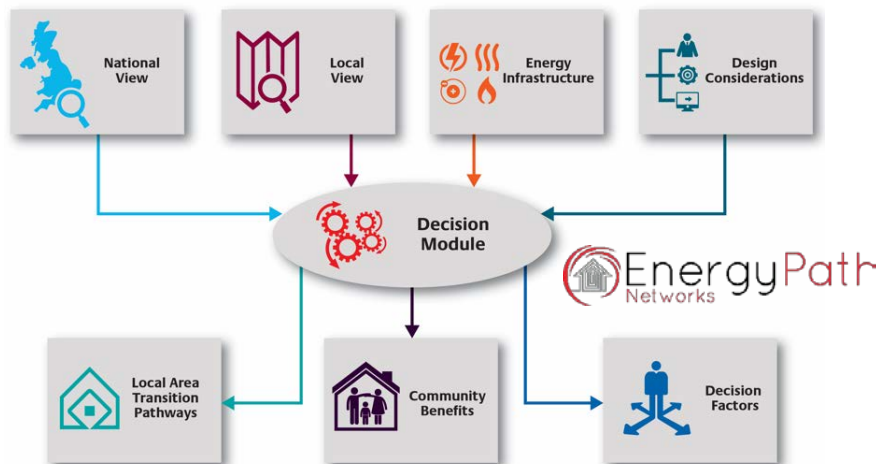


The tools provide insight and in combination support local strategic planning



Strategic Spatial Planning

- A 'systems' view
- What? Where? When?
 - For investments in Buildings, Networks and Energy Production
 - Across Heat, Electricity, Gas
- Identifies local power network reinforcement / smart grid opportunities
- Supports proactive planning and investment
- Aids consensus building - stakeholders and local communities
- Looking at ways to make this capability available





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