

# Local Area Energy Planning

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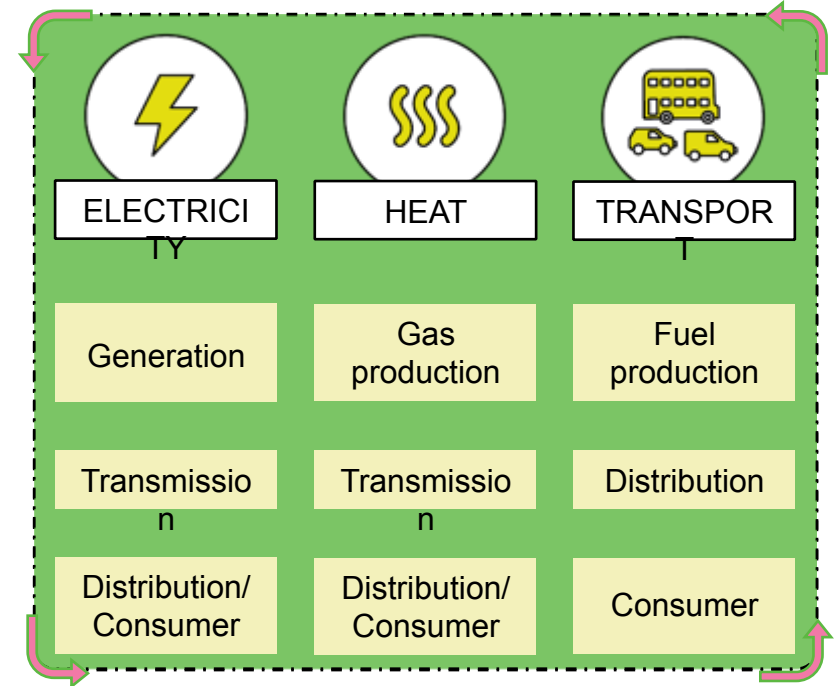
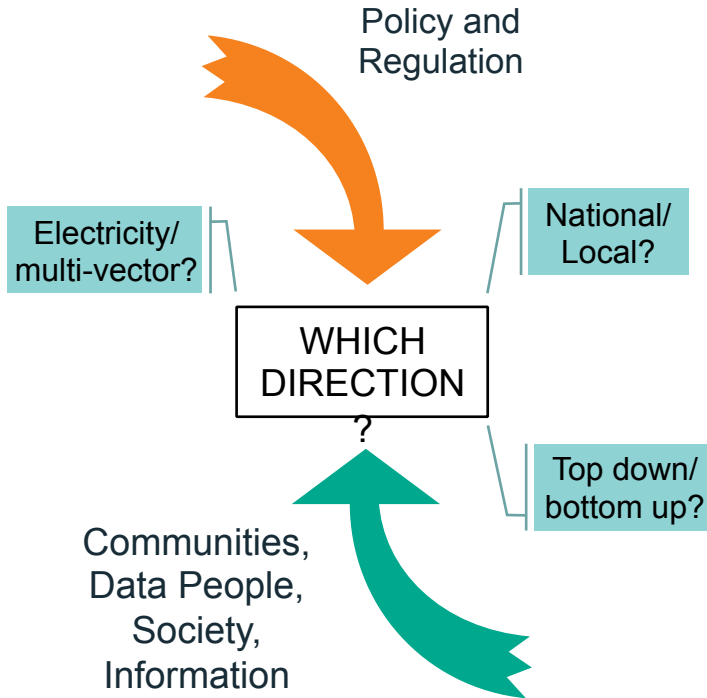
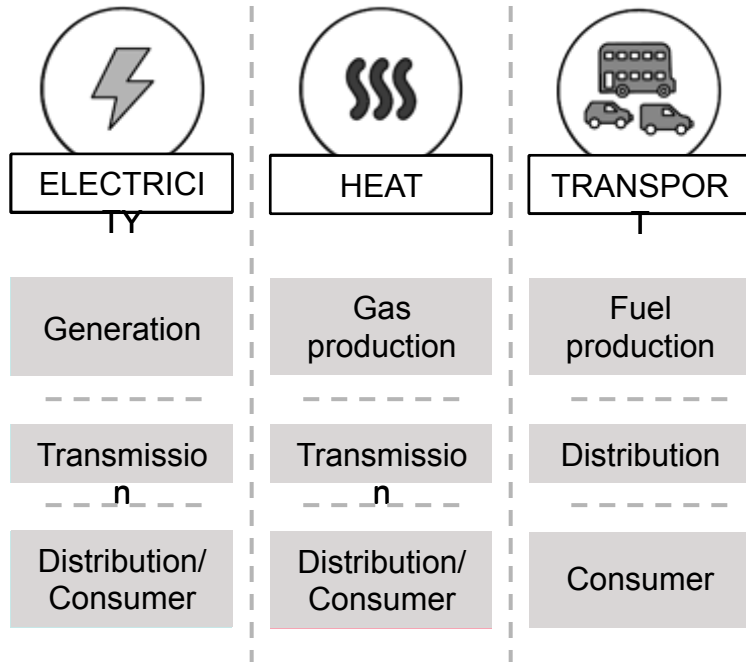
10<sup>th</sup> Cleanpower Smart Grids 2019,  
1-2 Cambridge, UK

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 @EnergySysCat 



# The energy system is transforming



**Decentralisation**

**Decarbonisation**

**Democratisation**

**Digitalisation**

Some of the toughest challenges for decarbonisation will likely require local and regional coordination and action



How to decarbonise buildings and what combinations of fabric upgrades, heating systems and infrastructure in different local areas



The future of the gas network (including the potential of hydrogen)



How to minimise the costs of the transition for consumers, including integration of electric vehicles and low carbon heating

Significant ambition and commitment from local areas to decarbonise ahead of national carbon budgets



**Bristol** - ambition to be carbon neutral by 2030



**London** - committed to being a zero carbon city by 2050



**Greater Manchester** - ambition to be carbon neutral by 2038

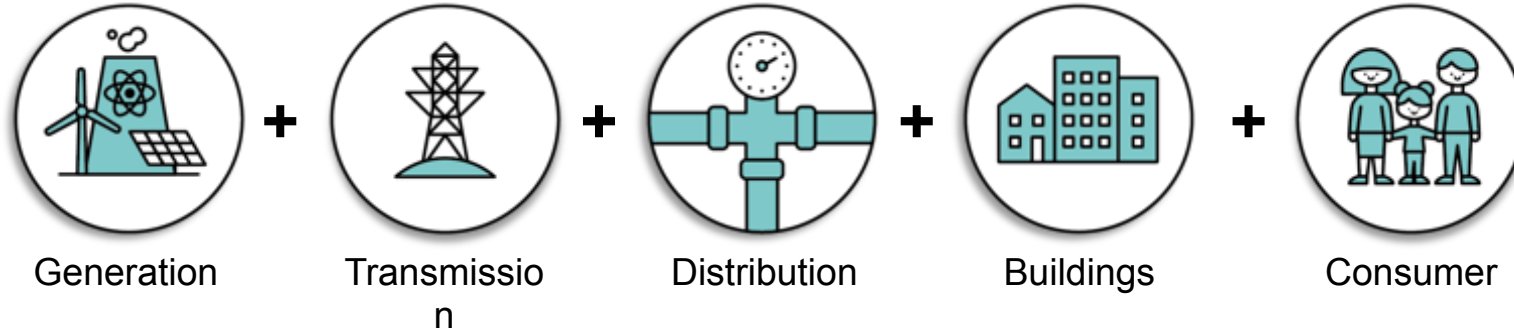


**Glasgow** - aims to become the UK's first net-zero emissions city



# Energy Systems Catapult advocates a whole systems approach

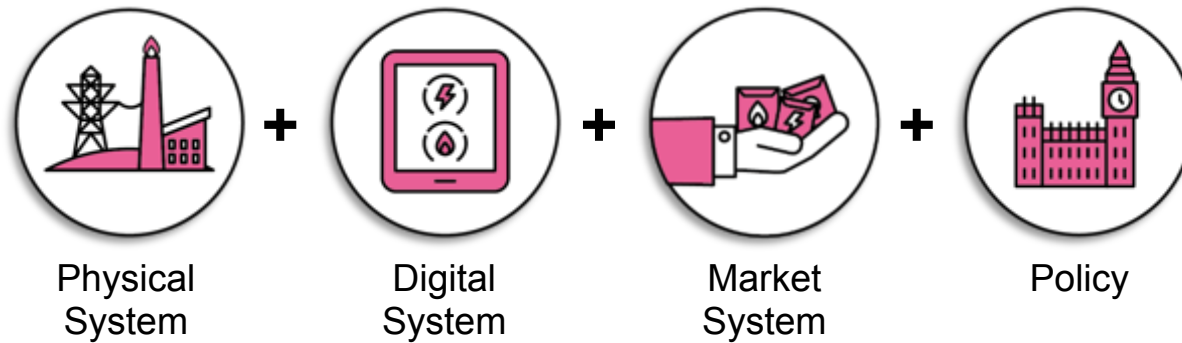
Joining up the system from sources of energy to the consumer



Breaking down silos between energy vectors



Joining up physical requirements of the system, with policy, market and digital arrangements



# Local Area Energy Planning provides a potential solution



Supports the major decisions on **decarbonising heat** and the **future of the gas grid**



Recognises the importance of **place** and **regional variation**



Takes a **whole energy system** approach - to minimise cost



Enables **local leadership** in supporting the clean transition



Helps to drive **action, investment** and **clean growth**



Stimulates **engagement** with **consumers** and **communities**

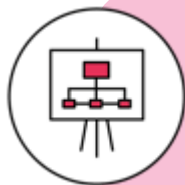
# What is Local Area Energy Planning?



Each local area is different - its people, geography, building stock, energy networks and ambitions and priorities



Local Area Energy Planning provides a data driven, spatial and collaborative means, involving local government & network operators, of exploring a range of possible future local energy scenarios to cost-effectively decarbonise



Resulting in the identification of energy network and system choices to support carbon neutral aspirations - informing what local action is needed and where



# Piloted with three different local areas

## Smart Systems and Heat programme



**Bridgend**

**Newcastle**

**Greater Manchester**

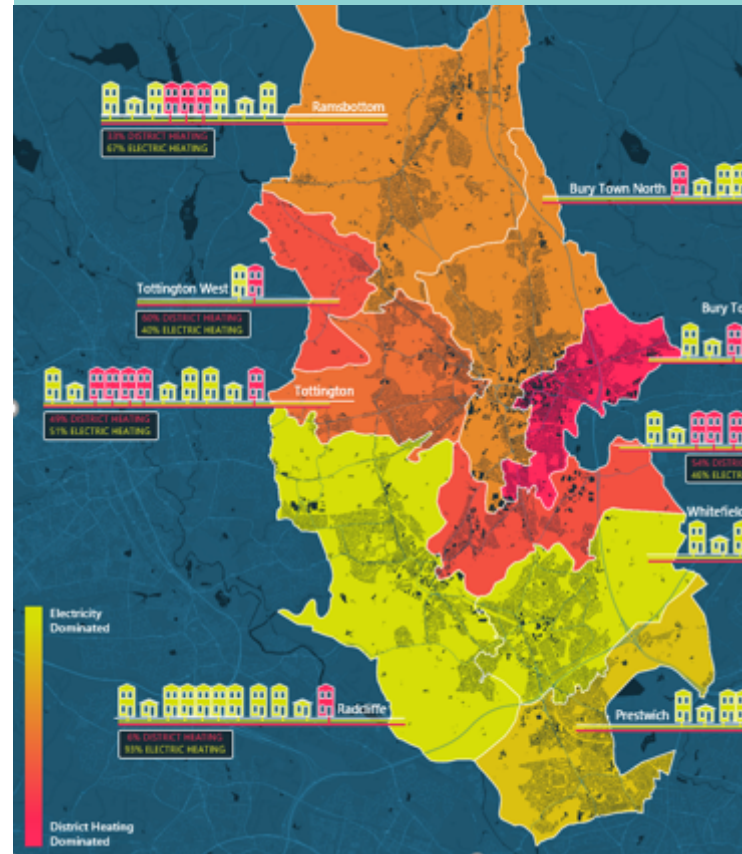


# Developed a structured & repeatable framework

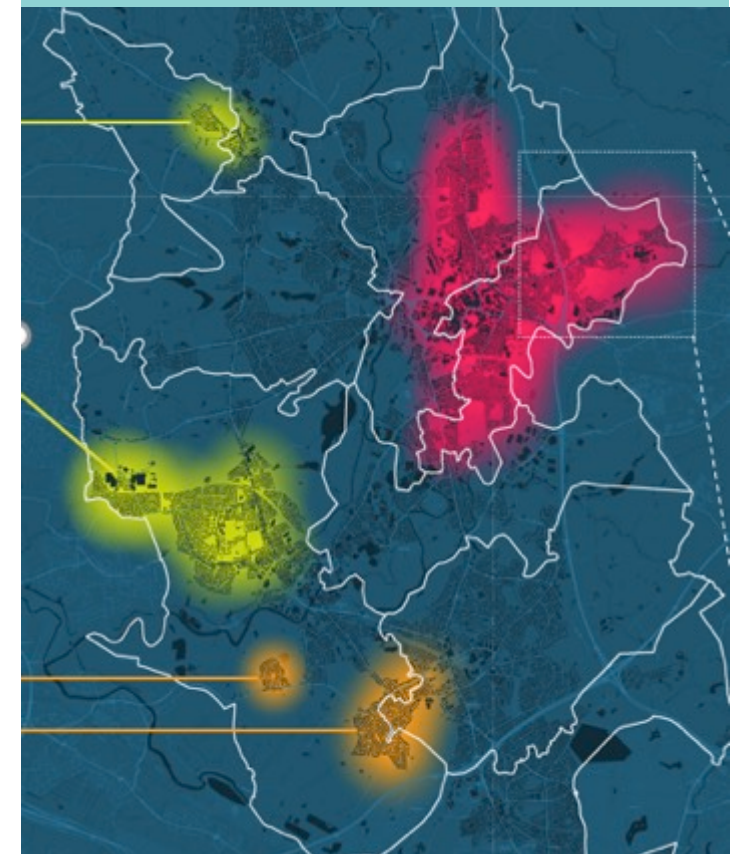
Understand **local options and choices for heat** in whole system context



Collaboratively develop a **long term evidence based plan** to decarbonise



Resulting in data and insight to **target innovation and deployment projects**



## Taking a whole systems approach can help minimise the cost of low carbon transition

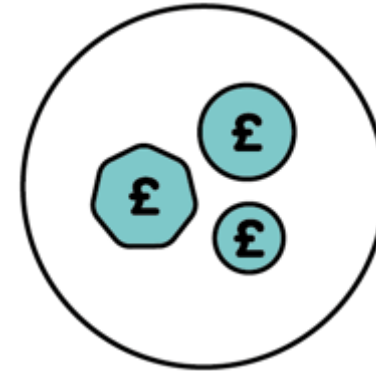
A well planned low carbon design for a local area found to be cheapest; an inefficient transition is **c.17% (£1.3bn) more expensive to 2050<sup>1</sup>**

We found reactive or single vector decision pathways (e.g. electrification or hydrogen) have higher cost

We found all local decarbonisation pathways to be more costly than business-as-usual

Drivers for Net Zero mean **potential for greater system cost benefits**

Potential for wider local social and economic benefits



<sup>1</sup>Based on one local area's total energy system cost to 2050 (from LAEP pilots)

# Increasing recognition and consensus that local, whole system approaches are needed



“Local areas are best placed to drive emission reductions through their unique position of managing policy on land, buildings, water, waste and transport”<sup>1</sup>



“If our electricity, gas, heat, transport and waste sectors are all interdependent, then so must be the solutions for their decarbonisation. A whole-system approach means looking at optimal investment and operational decisions for the whole energy network, not just the individual parts”<sup>3</sup>



Is considering a whole systems approach “given the potential for increasing interdependence across the electricity system, and more broadly, with increasing interactions with gas, and heat, transport, and beyond”<sup>2</sup>



“We are committed to this whole systems approach to the energy transition, which will underpin our work on decarbonisation” & “we recognise the need for more local or regional energy planning”<sup>4</sup>



Recommends - local decarbonisation and local heat plans<sup>4</sup>



“Develop a strategy for low-carbon heat uptake beyond 2021. Aligning infrastructure investment in low-carbon heat with the UK's climate change targets requires the UK Government to develop a strategy for decarbonised heat”<sup>5</sup>



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