

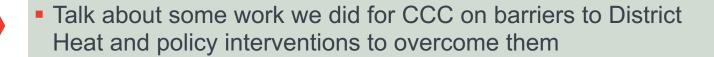
Barriers to District Heat and policies to overcome them

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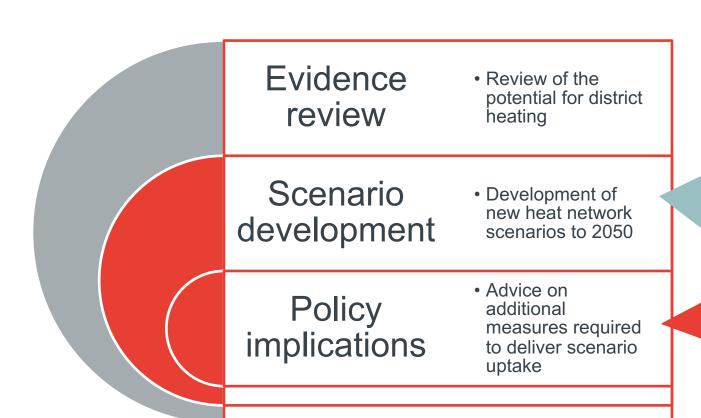
What have I been asked to do?



Slot into a session on "scenario-focused research to support policy framing"

Not talk for more than 15 minutes

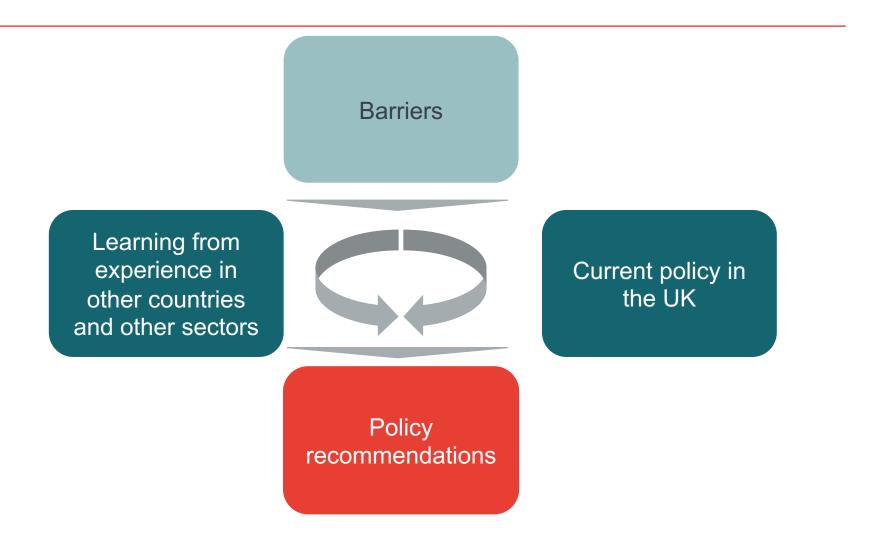
The CCC commissioned us to research the policy action to deliver a step change in district heating for the 5th Carbon Budget



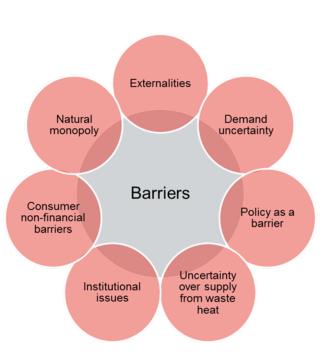
Element Energy found that 9% of building heating demand in 2030 and 18% of heating demand in 2050 could be met cost-effectively with district heat. This would require a step change in uptake.

We focussed on the policy action that could help deliver this step change.

We developed policy recommendations based on research, interviews and analysis

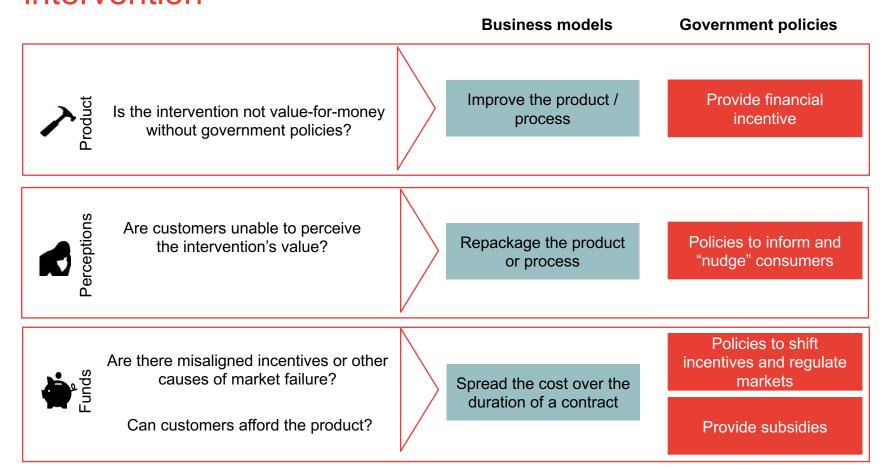


Barriers to district heat



Externalities	in	district heat produces fewer carbon emissions than most incumbent heating technologies, but this carbon saving is ot reflected in the price of heating.
Natural monopoly	is	the high fixed costs of district heat networks mean that it more efficient for one operator to serve each local narket.
Demand uncertainty		conomies of scale mean that the viability of investments vill be very sensitive to the level of demand secured.
Barriers associated with policy	in P in ce in	Policy uncertainty. District heat investments are capital- ntense and have long asset lives. Policy conflicts. Policies with different aims (e.g. to ncentivise renewable heating) or policies applied to only ertain sectors (e.g. the EU ETS) may reduce the ncentive to invest in district heat. Policy-created entry barriers. Regulation such as estrictive planning policies can create barriers.
Consumer non- financial barriers	av ha	wareness of district heat is low. Even where people are ware, they may lack interest. Lack of trust, the perceived assle of connecting to a district heat network, and erceptions of poor quality also need to be tackled.
Institutional issues	pa	here may be institutional issues within the sector, in articular relating to local authority resources and more eneral skills and knowledge gaps within the sector.
Barriers to the use of waste heat	a	may be difficult for investors to gain information on the vailability of waste heat (for example from power stations nd waste incinerators).

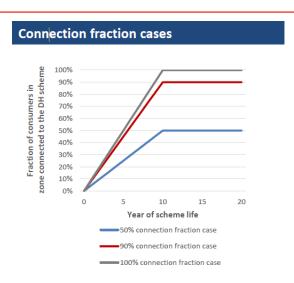
An aside on barriers to heat uptake and policy intervention



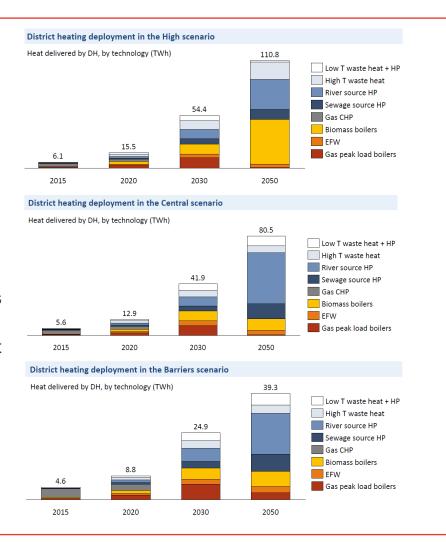
Policy should be focussed on those areas which business models cannot solve by themselves

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Link between policy choice and scenario



- 'Connection fraction' is the fraction of consumers within a zone connected to a DH scheme
- While the cost of required heating plant and heat sales revenue are strongly dependent on the connection fraction, the cost of the distribution pipework is largely independent
- 90% and 100% connection fraction: most / all barriers overcome through policies
- 50% connection fraction: barriers to consumer connection remain



Policy recommendations for district heat

Externalities

Natural monopoly

Policy as a barrier

Demand

uncertainty

uncertainty Institutional

Waste heat

non financial barriers

Consumer

Financial incentive:

Investor subsidy paid per connection set in line with carbon value Competition policy:

Active CMA oversight of sector

Other options for the longer term

Carbon tax:

Levied on consumers or investors and set in line with carbon price

Regulation:

Light touch regulation would be most suited for a large number of small networks

Local zoning:

- Zones with no financial incentives for other low-carbon heating options
- Public bodies to adopt policy of connecting to district heat networks where cost-effective
- Implement low regrets policies:
 - New district heat strategy with allocated responsibility
 - Provide district heat the same status as utility companies in planning
 - Planning permission as a lever for new developments to connect to district heat networks
 - Future proofing measures
 - Producers of waste heat to publish information on waste heat output
 - Targeted support for LAs
 - Accredited list of technical experts
 - Localised approaches to tackle consumer non-financial barriers

Some further reading

Report for CCC on barriers to District Heat:

https://www.theccc.org.uk/wp-content/uploads/2015/11/Frontier-Economics-for-CCC-Research-on-district-heating-and-overcoming-barriers-Annex-1.pdf

Report for BEIS on frameworks for low carbon gas system:

https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/699678/Final_BEIS_low_carbon_gas_070318_clean-STC.pdf

Report for ETI on barriers:

http://www.eti.co.uk/programmes/smart-systems-heat?size=10&from=50&_type=eti-document&publicOnly=false&guery=&programmeName%5B0%5D=Smart+Systems+and+Heat

Report for CCC on future regulation of the gas grid:

https://www.theccc.org.uk/publication/future-regulation-of-the-gas-grid/

Report for EEIG on an Action Plan for a comprehensive Buildings Energy Infrastructure Programme:

https://www.frontier-economics.com/media/2248/affordable-warmth-clean-growth.pdf

Report for CCC on heat pump pathways:

https://www.theccc.org.uk/wp-content/uploads/2013/12/Frontier-Economics-Element-Energy-Pathways-to-high-penetration-of-heat-pumps.pdf

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