



Department for
Business, Energy
& Industrial Strategy

UK GOVERNMENT SUPPORT TO HEAT NETWORKS – UPDATE

Liveable City conference, Birmingham

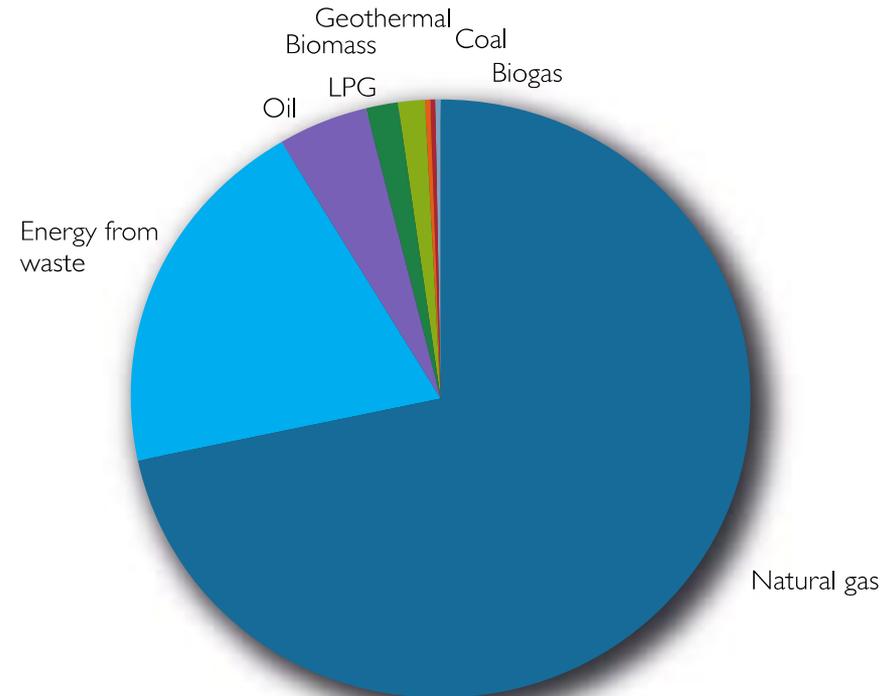
BEIS Heat Networks Team (Keven Le Doujet)
29 November 2017





Why heat networks in the UK?

- Lowest cost low carbon heat generally comes at scale – need a network to deliver the heat, particularly in urban areas
- Committee on Climate Change (CCC) central scenario for the 5th carbon budget shows heat networks serving 18% of buildings heat demand in 2050 (81TWh), saving 15.1MtCO₂e/year
- Clean Growth Strategy analysis shows heat networks indicates 17-24% of buildings heat by 2050
- An 8-10% compound growth rate is required to meet the lower end of these trajectories (from 2% growth rates today).



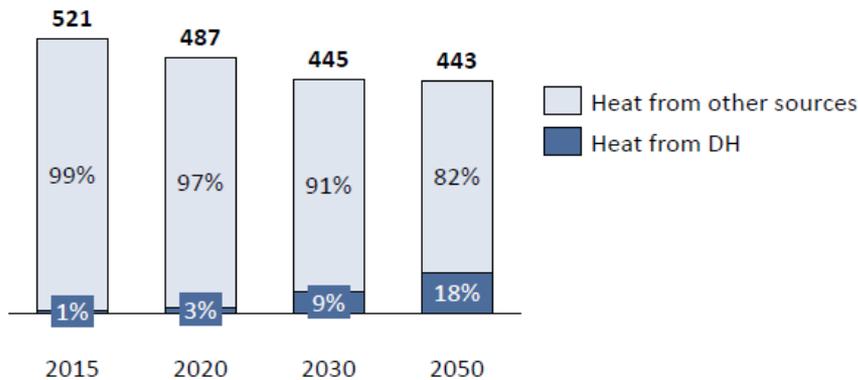
- Today: Over 17,000 communal and district heating systems have notified under the EED regs, supplying around 10TWh per year (around 2% buildings heat)



Latest modelling for the CCC by Element Energy confirms role for district heating

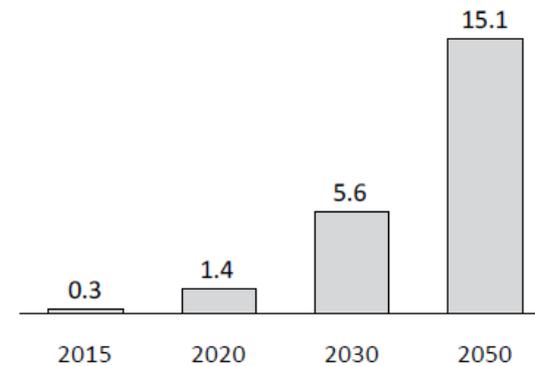
District heating deployment in the Central scenario

Heat supply in the domestic and non-domestic sectors* (TWh)



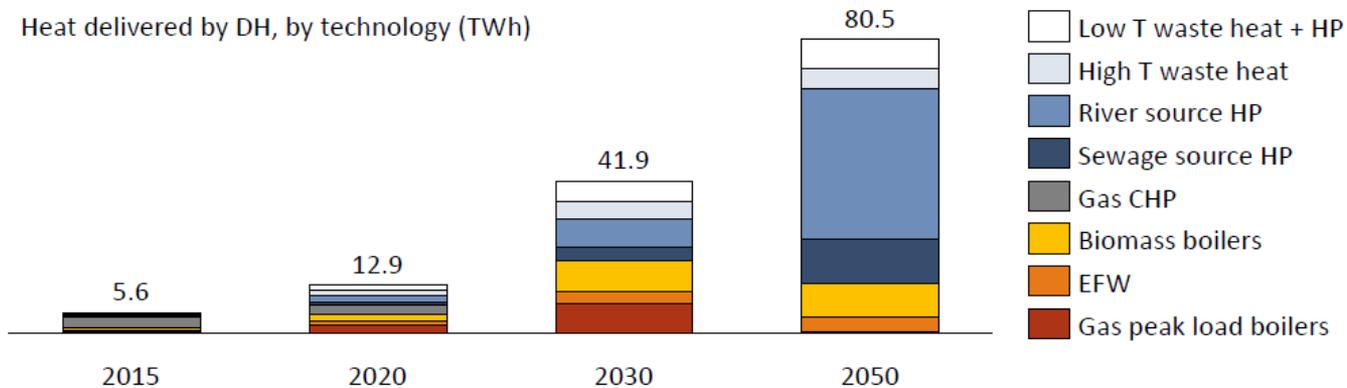
Associated CO₂ abatement

CO₂ emissions abatement from DH (MtCO₂)



Technology mix in the Central scenario

Heat delivered by DH, by technology (TWh)





BEIS Clean Growth Strategy: Illustrative Pathways to 2050

Table 10: Characteristics of the 2050 pathways in 2050

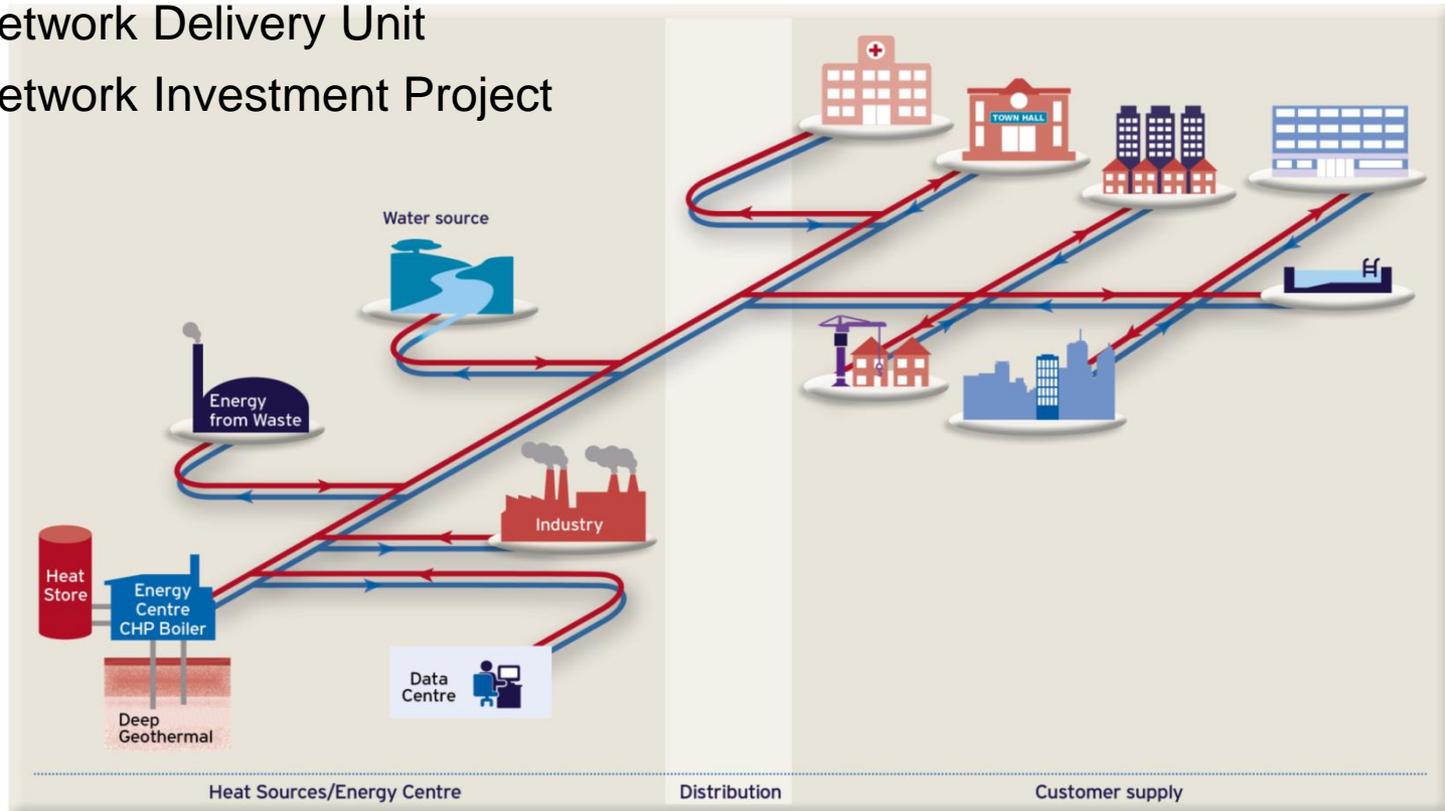
		Pathway 1: Electricity	Pathway 2: Hydrogen	Pathway 3: Emissions removal
Non-industrial business and public sector	Emissions (MtCO ₂ e)	3	1	1
	Share of district heat use in heating (per cent)	17%	24%	18%
	Share of electricity use heating (per cent)	83%	18%	80%
	Share of hydrogen use in heating (per cent)	0%	56%	0%
Industrial business	Emissions (MtCO ₂ e)	58	59	48
	Share of electricity use (per cent)	33%	23%	30%
	Share of hydrogen use (per cent)	0%	32%	28%
	Share of bioenergy use (per cent)	20%	15%	9%
	Captured emissions from industrial businesses (MtCO ₂ e)	0	165	37
Homes	Emissions (MtCO ₂ e)	8	6	19
	Share of district heat use in heating (per cent)	17%	17%	17%
	Share of electricity use in heating (per cent)	76%	14%	60%
	Share of hydrogen use in heating (per cent)	0%	62%	0%

- We are clear that further interventions will be necessary beyond HNIP capital towards creation an effective long-term framework to deliver sustainable and subsidy-free market growth.
- Following publication of recommendations from an industry task force in Jan 2018 we will examine in detail the measures required to put in place a long term market framework.



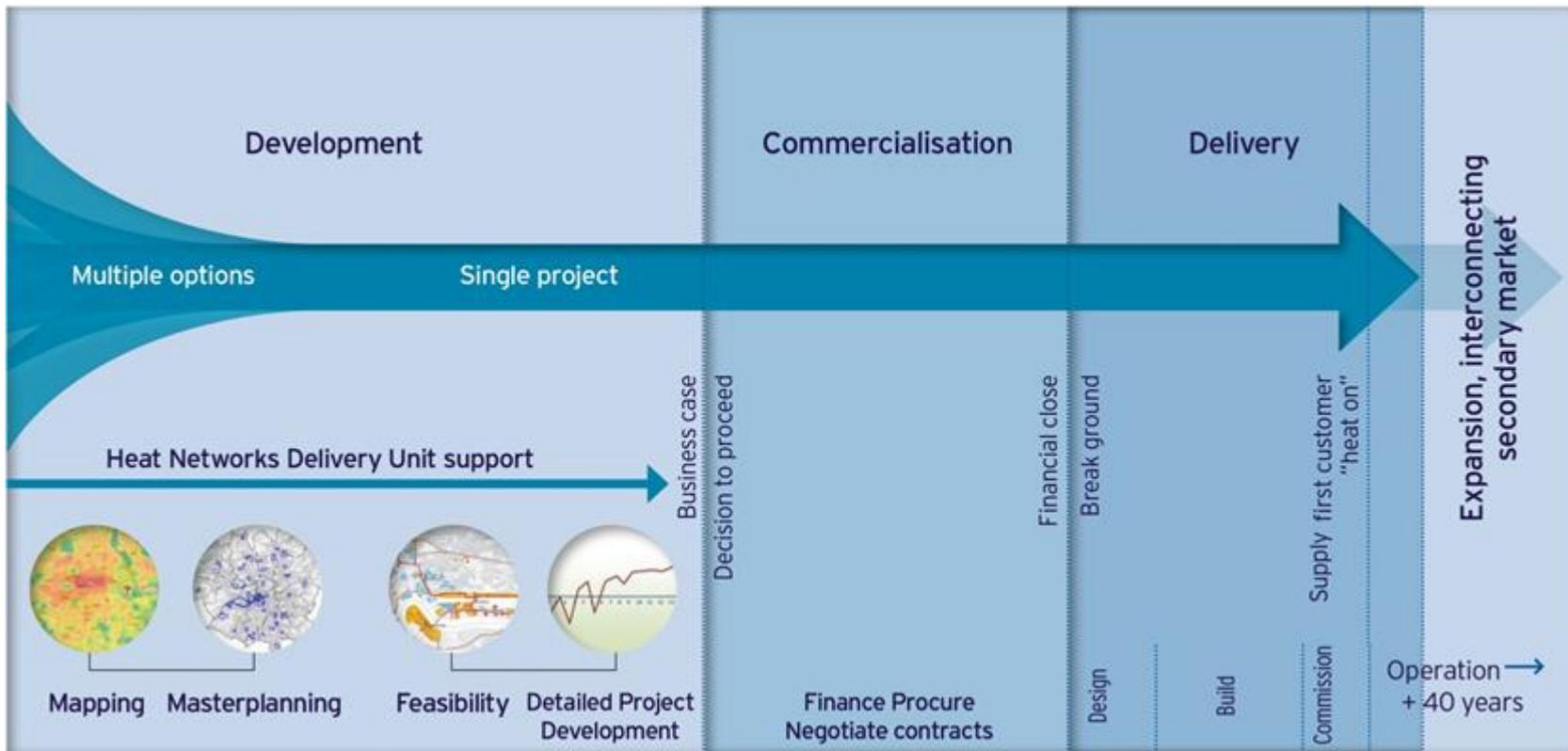
Heat networks: the story so far

- Industry led schemes: Heat Trust and technical Code of Practice
- Heat Metering & Billing Regulations
- £7m Heat Network Innovation Programme
- Heat Network Delivery Unit
- Heat Network Investment Project





Heat Network Development & Delivery

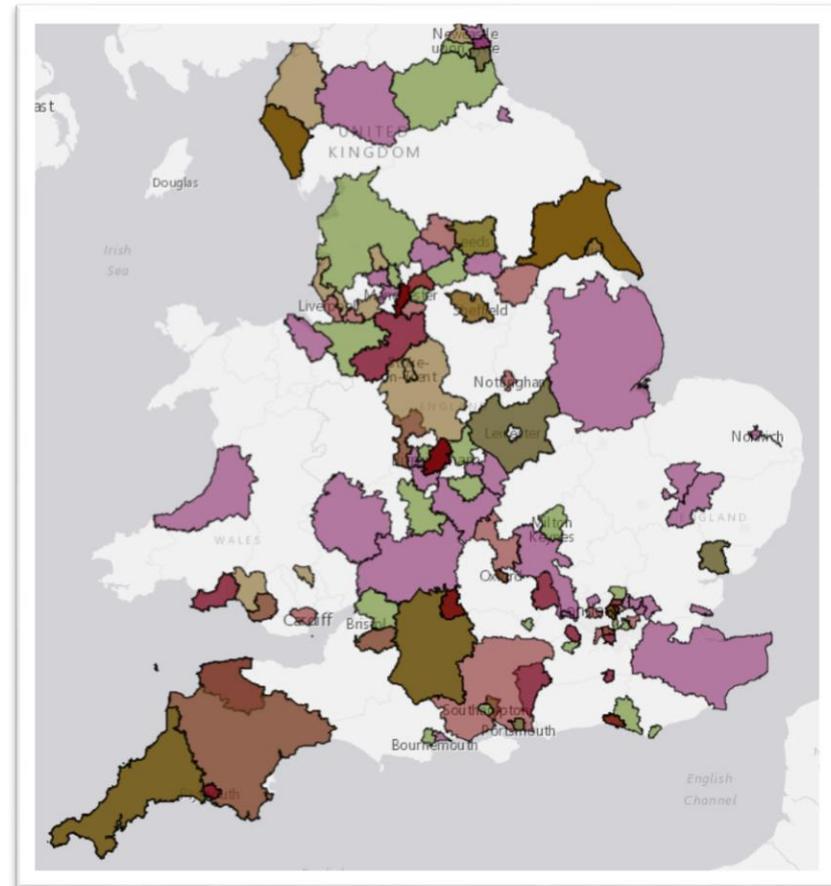




Preparing for market expansion: The Heat Networks Delivery Unit

Developing a heat network pipeline in England and Wales

- HNDU is a team within DECC made up of specialists providing flexible guidance to local authorities
- £14m funding - feasibility and pre-build development has been allocated across 4 funding rounds
- HNDU is now supporting over 200 heat projects across 131 local authorities plus Coal Authority
- LA stakeholders made up of urban and rural as well as different tiers of local govt.
- A clear demonstration of the ambitions of local authorities across England and Wales to support the deployment of heat networks.





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The HNDU Portfolio

- What do the projects look like?
 - A diverse range of potential schemes ranging from £2m up to projects in excess of £60m.
 - A combination of new build and retrofit connections
 - A mixture of public and private sector connections, with initial anchor loads primarily public
 - Technology agnostic so a variety of heat supplies
 - Common IRR varies between 0-15% with majority at 5-9%.





Heat Network Investment Project – Aims

1. Increase the **volume** of heat networks built, by providing central Government funding which will draw in significant additional investment.
2. Deliver **carbon savings** for carbon budgets across the lifetime of the infrastructure asset
3. Impact the **type** of heat networks built so that they are technically and commercially **future-proofed** and operate with **no customer detriment** in comparison to the likely alternative heat supply.
4. Alongside investment in innovation and development of the appropriate legislative framework, help to create the conditions for a **self-sustaining heat network market** that does not require continued Government funding after this programme of investment support has ended.



Creating conditions for a self sustaining market

Sustained **pipeline** of heat network projects in development matched by a sufficient volume of appropriate **finance** so that they are built.

What are the components of a sustainable heat network market?

- Heat network sponsor capacity and capability
- Consumer connections and satisfaction
- Supply chain growth
- Costs falling, possibly through contractual standardisation and cost-reducing innovation
- Sufficient supply of finance, reduced perceptions of risk, and cost of capital falls
- Conditions becoming more favourable for investment
- Aggregation of heat networks into larger portfolios commensurate with institutional investor thresholds
 - Contractual innovation which might include unbundling
 - Creation of a secondary market for heat networks



Eligible heat networks

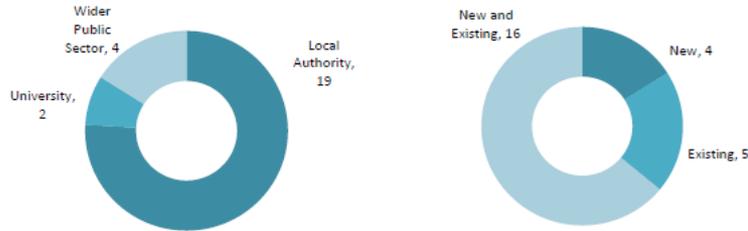
1. Connecting two or more buildings
2. No technical or contractual impediment to future expansion / interconnection
3. >50% renewable energy, 50% recovered heat, 75% CHP or 50% combination
4. Reduction in primary energy compared to counterfactual
5. Heat Networks (Metering and Billing) Regulations 2014
6. CHPQA



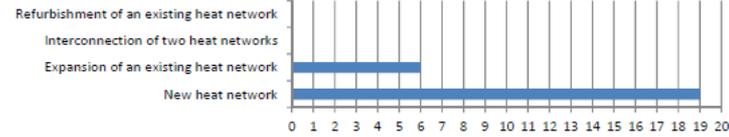


Summary of pilot bids received

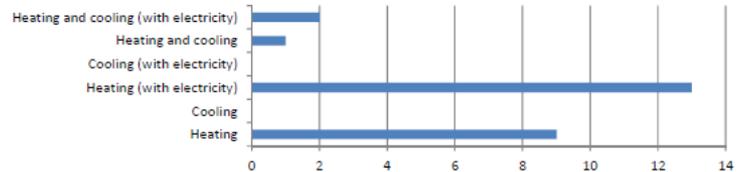
Type of organisation **Building Heat Network will serve**



Kind of Heat Network Project



Type of Heat Network



Customers Heat Network will serve	No.
Domestic - Public sector & Private sector, Non-Domestic - Public sector & Private sector	10
Non-Domestic - Public sector & Private sector	4
Non-Domestic - Public sector	3
Domestic - Public sector & Private sector, Non-Domestic - Public sector	2
Domestic - Private sector, Non-Domestic - Public sector & Private sector	2
Domestic - Public sector, Non-Domestic - Public sector	1
Domestic - Public sector, Domestic - Private sector	1
Domestic - Public sector	1
Domestic - Private sector, Non-Domestic - Private sector	1

- 25 projects
- Representing £263m total Capex
- Projects range from £0.5m - £30m total capex
- £78.5m funding requested (average 30% of capex)



The successful pilot projects

Recipient	Project Name	Amount Awarded	Technology	Project type
Sheffield City Council	Sheffield District Energy Network development	£5.73m (£2.23m grant & £3.5m loan)	EFW/Biomass power plant	Expansion and interconnection of two heat networks
Camden Council	Somers Town Energy (Phase 2)	£1.05m grant	Gas CHP	Expansion of an existing heat network
Manchester City Council	Manchester Civic Quarter Heat Network	£2.87m grant	Gas CHP	New heat network
Colchester Borough Council	Colchester Northern Gateway	£3.51m grant	Heat Pump	New heat network
London Borough of Waltham Forest	Wood Street South	£1m grant	Gas CHP	New heat network
London Borough of Barking & Dagenham	Becontree	£1.08m grant	Gas Boiler	New heat network
Westminster City Council	Church Street District Heating Scheme	£2.56m grant	Gas CHP	New heat network
Crawley Borough Council	Crawley Town Centre Heat Network	£1.4m grant	Biomass & Gas CHP	New heat network
Manchester City Council	St Johns heat network	£5m loan	Gas CHP	New heat network
Total		£24.21m		



What will the main scheme look like?

- **We are building the lessons from the HNIP pilot into the main scheme design and delivery approach**
- **We expect the main scheme to start receiving applications in autumn 2018**
- **We expect to allocate the first year of funding by March 2019, as planned.**
- We are planning to release more details on the design and delivery of the main scheme early in 2018 alongside the invitation to tender for the Delivery Partner
- In the meantime, the HNIP pilot guidance is a useful pointer for the main scheme and the evidence requirements, although this is being further developed and will not be fully representative of the main scheme – see <https://hnip.salixfinance.co.uk/>



What will the main scheme look like?

- **Applicant types:** can apply directly for capital
 - **Pilot** public sector
 - **Main scheme** + private and third sector?
- **Funding mechanisms**
 - **Pilot** loans and grants
 - **Main scheme** what combination of grants, loans and/or equity?
- **Application assessment / compliance requirements:**
 - May alter in light of learning from the pilot?
- **Delivery body:**
 - **Pilot** application processing and financial administration
 - **Main scheme full** processing and administration including scoring? Possibly bringing in additional funds?





Next steps

- Sponsors can still register interest in the main scheme, via a simple questionnaire
- This will help inform the main HNIP funding scheme as well as the development of further policies to support the heat networks market
- Publishing a timetable for launch of main scheme by end of the year
- Responding to task force recommendations in spring 2018

Email heatnetworks@beis.gov.uk to receive a blank questionnaire and receive regular updates on the HNIP