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# UK HEAT NETWORKS MARKET DEVELOPMENT

The Department for Business Energy and Industrial  
Strategy

Presenter: George Dobson, Head of Projects, North, Heat  
Networks Delivery Unit



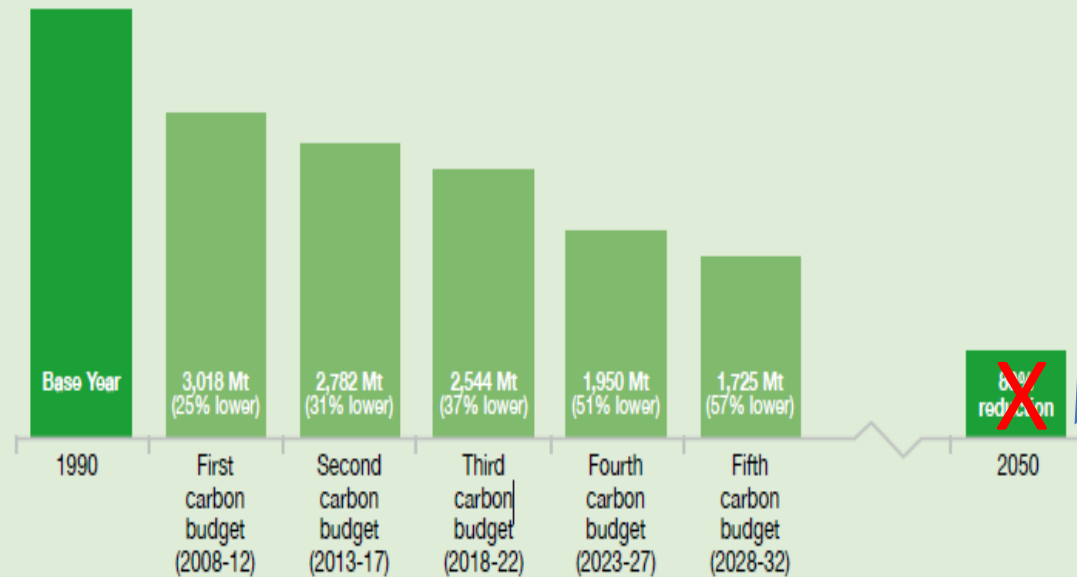
# The UK Decarbonisation Agenda

- Through the Climate Change Act (2008) UK are **legally obligated** to decarbonise and
- First in G20 to commit to “**net zero**” emissions by 2050..
- The role of Heat Networks set out in **The Future of Heating** and updated in the **Clean Growth Strategy**
- Heat networks have vital role in:
  - **decarbonisation of heat**
  - **affordable, clean and flexible energy infrastructure**
  - **safeguarding our future economic security.**



# The UK Decarbonisation Agenda

Figure 3: UK carbon budgets and 2050 target<sup>35</sup>

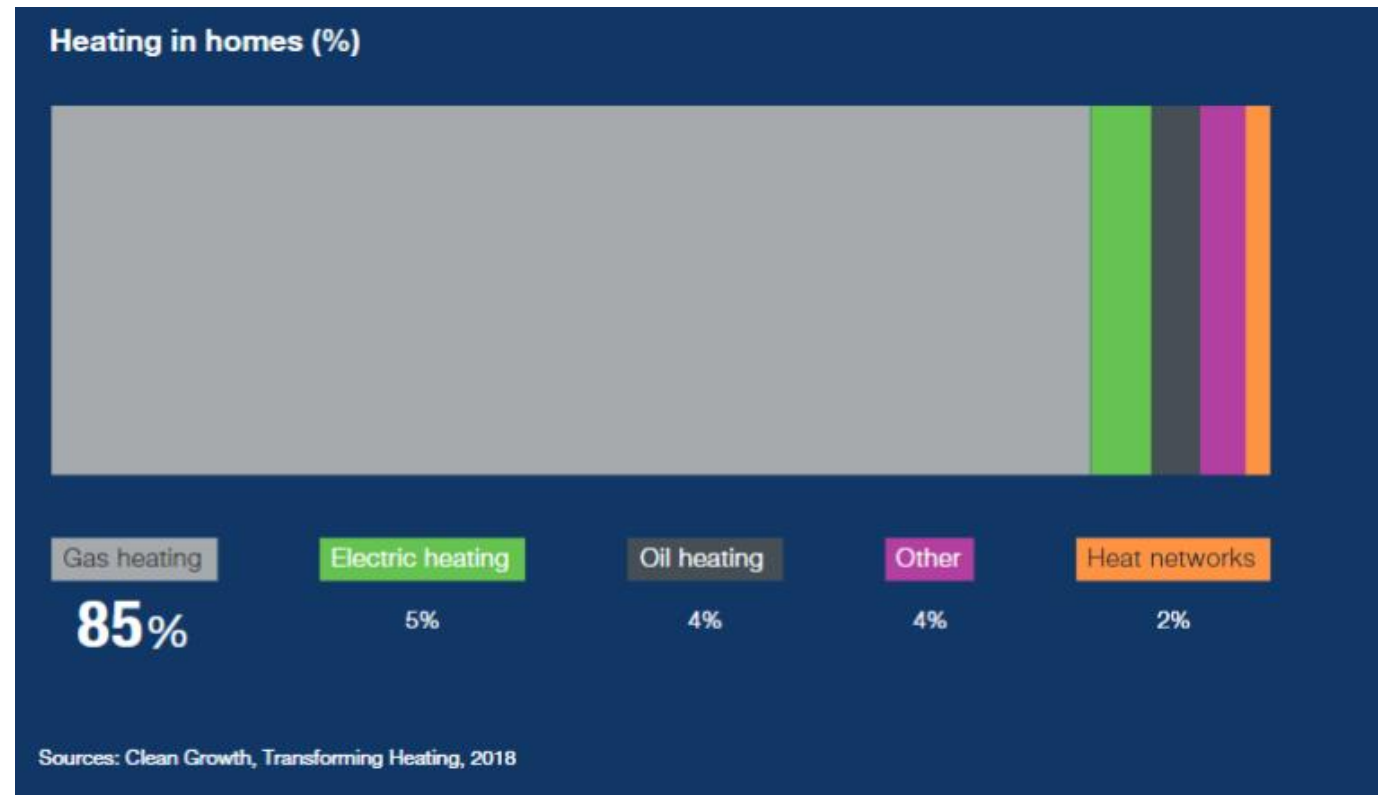
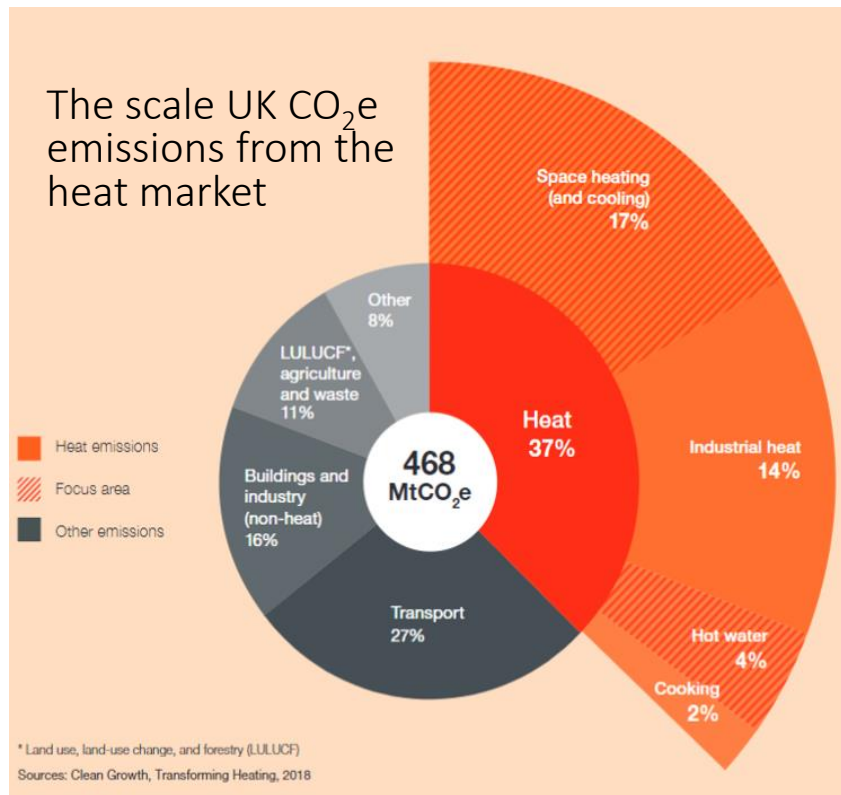


Source: UK legislation; BEIS

Was 80%  
now:  
Net Zero



# How much does the heat sector contribute to the UK's carbon emissions?

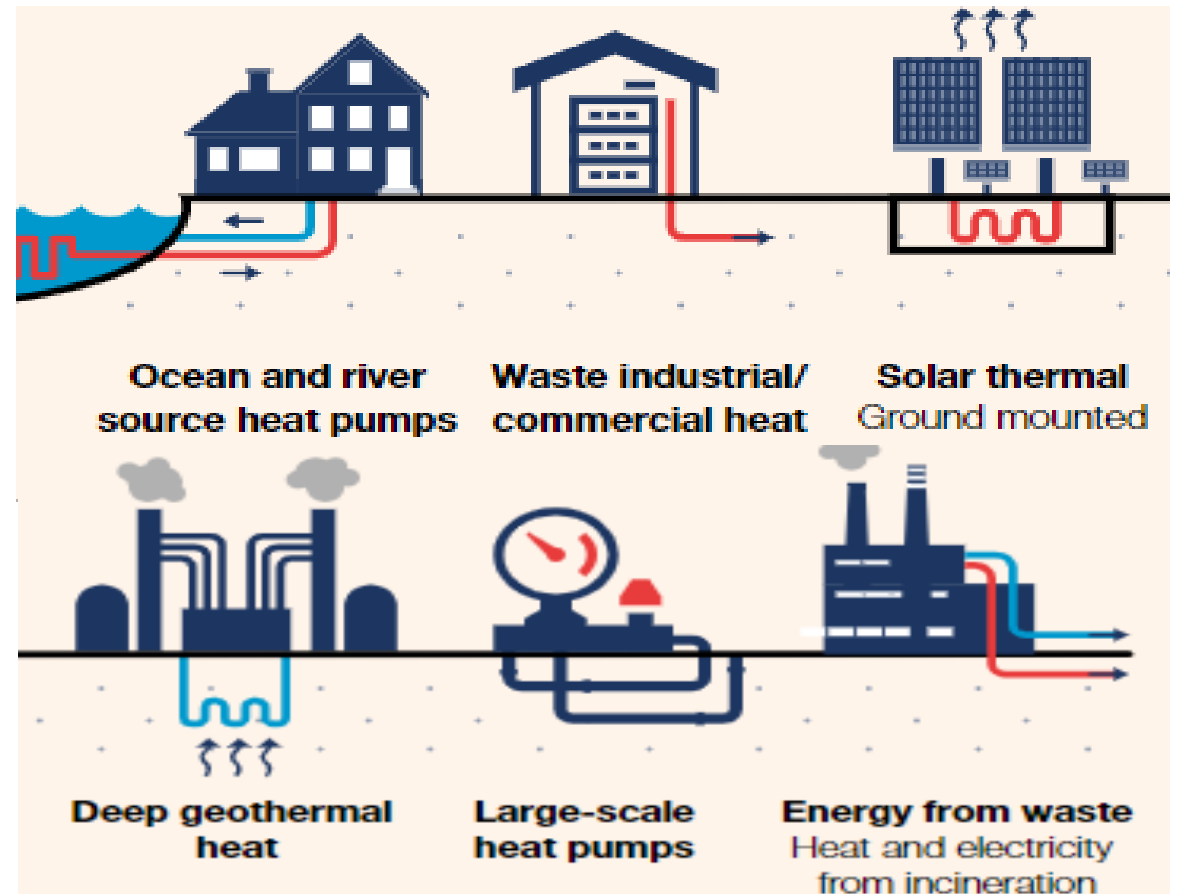


At 21% heating, cooling and hot water in buildings is one of the biggest sources of UK carbon emissions. Much of this can be attributed to individual gas boilers that produce 85% of heating in homes.

# Why heat networks?

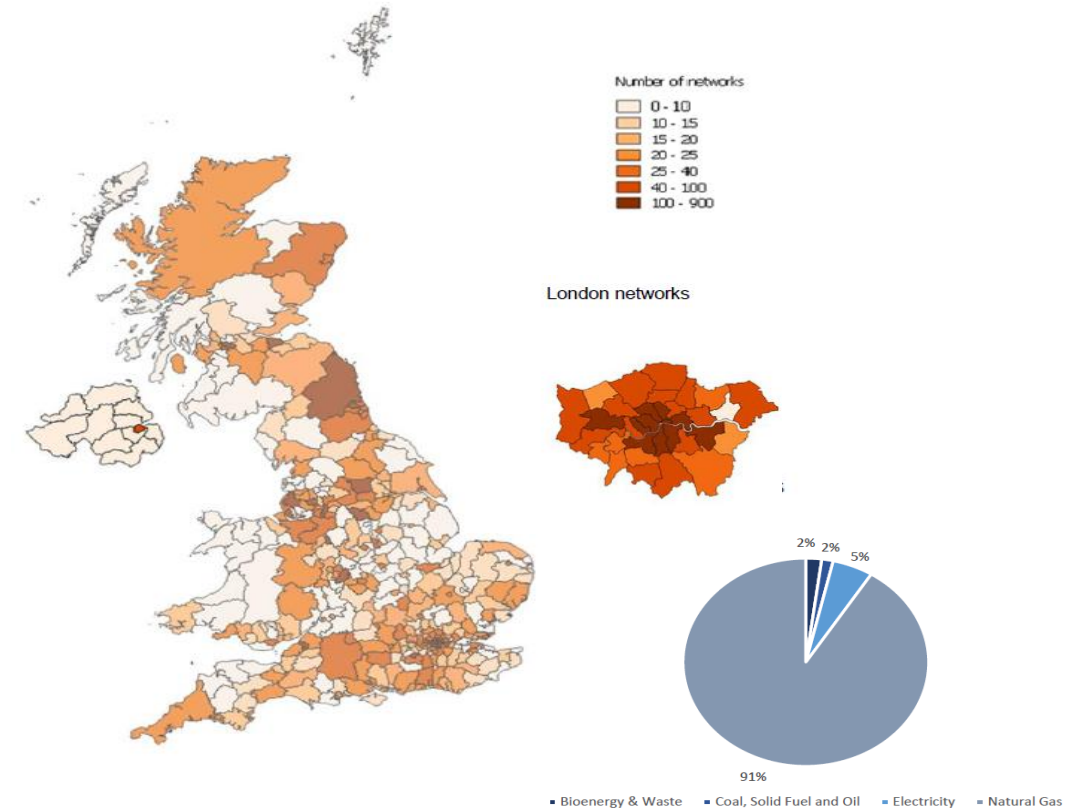
In the right place:

- **lower carbon and cheaper**
- **natural and waste heat sources**



# UK Heat Network Market Now

- **480,000** consumers
- **2,000** district heating networks
- **2.4%** of heat for buildings
- **10TWh** of annual heat demand supplied.



*BEIS (2018) Energy Trends: Experimental statistics on heat networks*  
(The experimental statistics may not wholly reflect the true position of the current heat network market due to networks not reporting or providing incorrect returns)



(Image: [Gateshead District Energy Scheme](#))

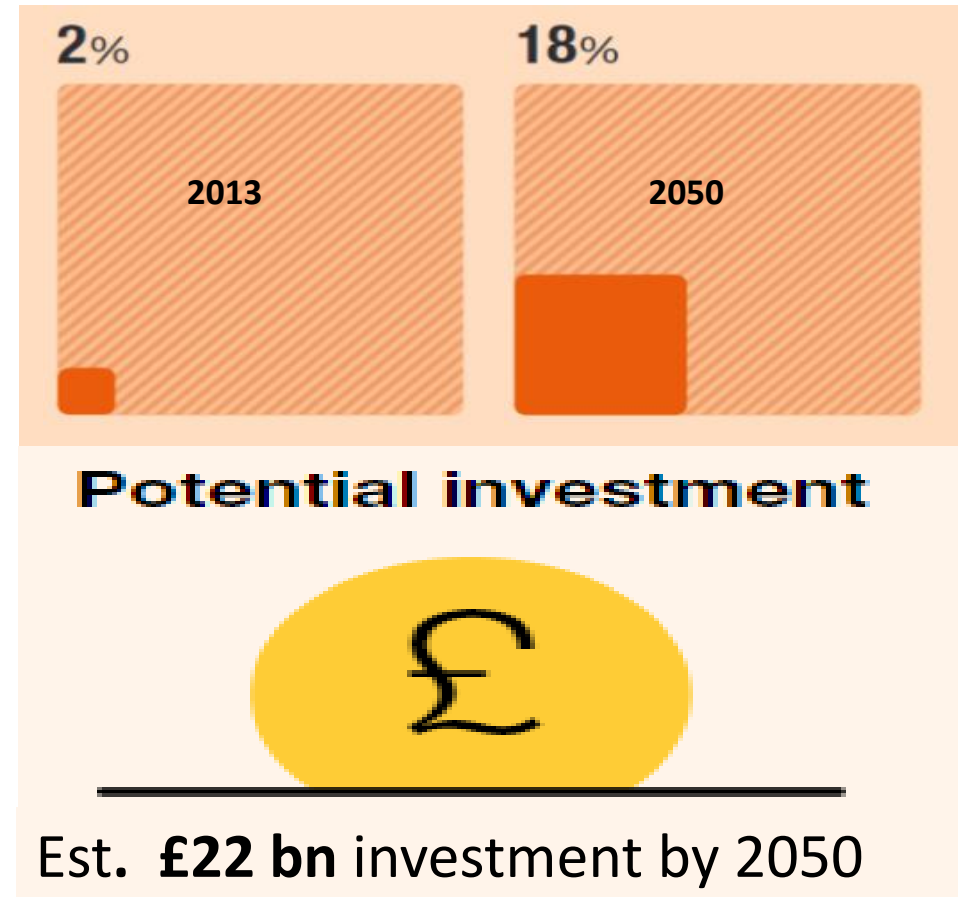
# THE OPPORTUNITY



# Overall Opportunity 2050

*How significant a role might Heat Networks play?*

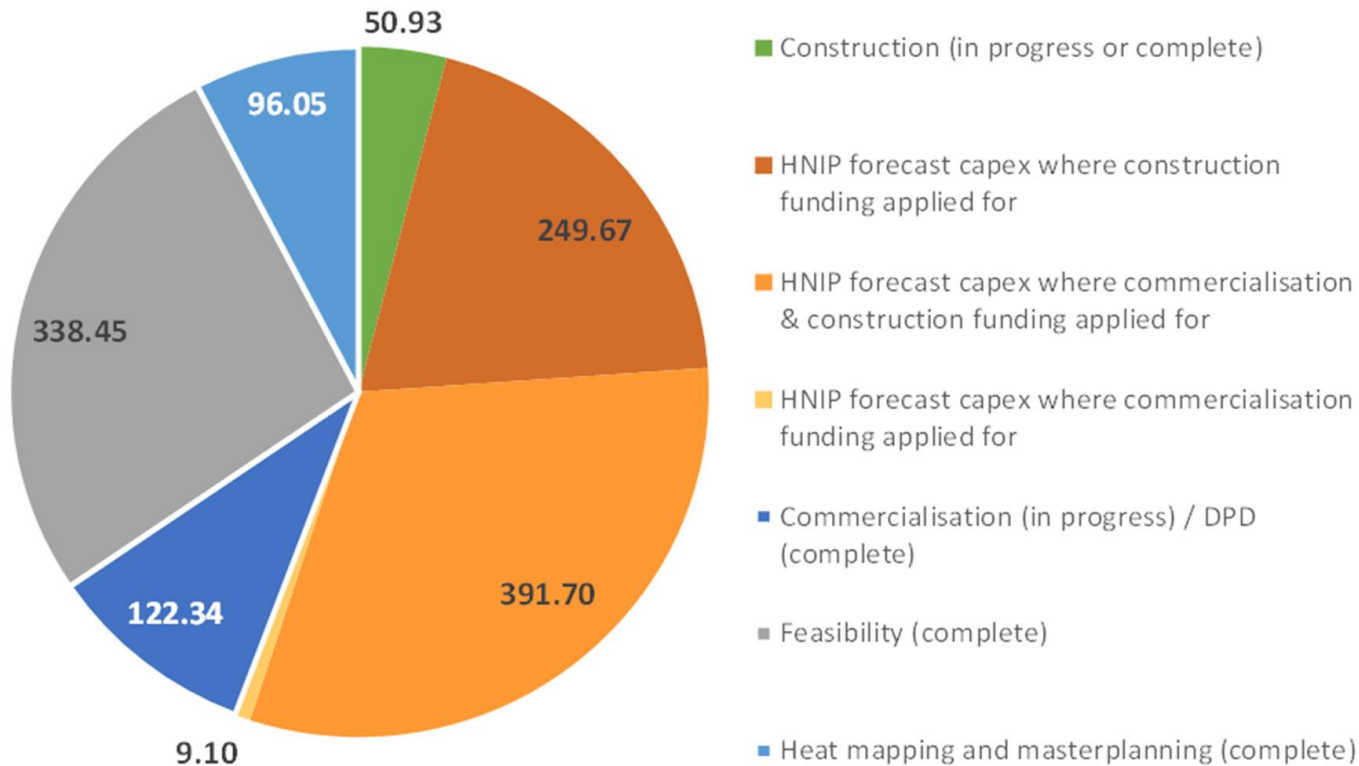
- **UK Govt:** [Clean Growth Strategy](#) estimates:
  - 17-24% (77-108 TWh) by 2050.
- **UK [Committee on Climate Change](#) (CCC):**
  - 9% (42 TWh) by 2030
  - 18% (81 TWh) by 2050.





# Current Opportunity 2020

HEAT NETWORKS 2020 Q1 PIPELINE: CAPEX BY DEVELOPMENT STAGE



## 2020 Q1 Capex pipeline

- **£1.26 billion total**
- £51m is under construction
- £650m of HNIP projects
- £667m of HNIP project

# Key Challenges

1. The market is not homogenous
2. High development and transaction costs
3. High upfront capital costs
4. Immature unregulated market
5. Cheap natural gas counterfactual
6. Local Authorities buy in
7. Legitimate context
8. Customer needs
9. Investor risk perception

A low-angle, upward-looking photograph of industrial structures. In the foreground, two large, dark, metallic smokestacks curve upwards towards the top of the frame. In the center, a tall, cylindrical tower with horizontal wooden planks and metal bands rises vertically. The background is a clear, bright blue sky. A semi-transparent dark blue horizontal band is overlaid across the middle of the image, containing the text 'GOVERNMENT ROLE' in white.

# GOVERNMENT ROLE



# Vision: Help to support the development of a self-sustaining heat networks market by the mid 2020s

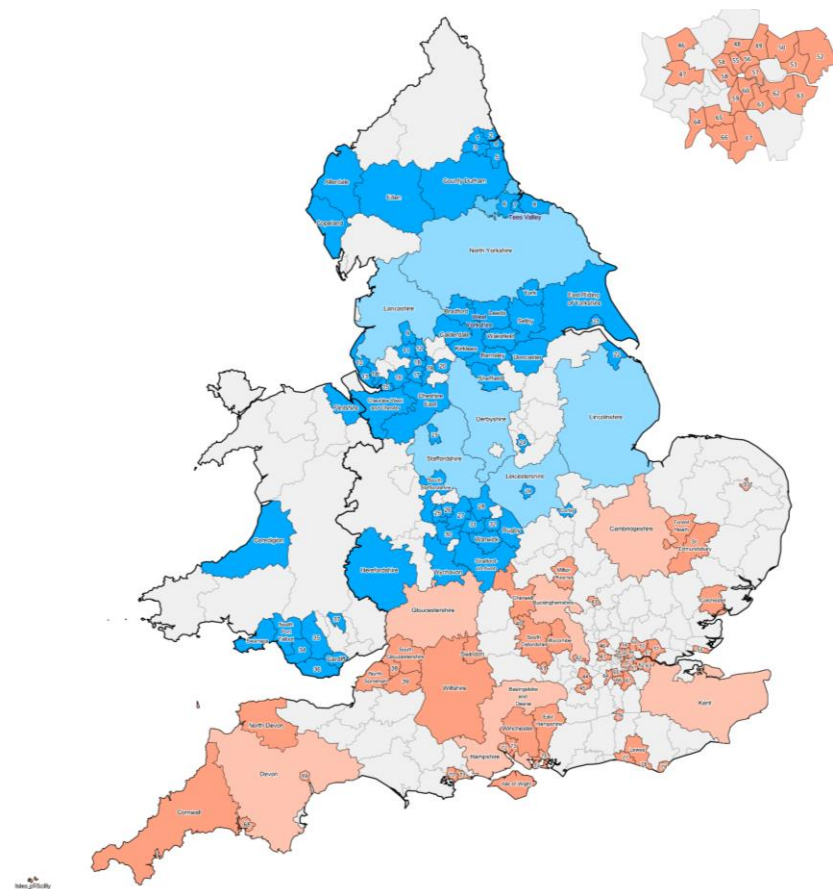
## UK Government Support for Heat Networks

<b>Heat Network Delivery Unit</b>	<b>Heat Metering and Billing Regulations</b>	<b>Heat Network Investment Project</b>	<b>Market Framework</b>	<b>Green Heat Network Fund</b>
Established in 2013 to support Local Authority projects providing support, guidance and funding for techno economic feasibility studies	Set in law in 2014 in response to the EU Energy Directive these require heat suppliers to install and bill using consumption heat meters, where cost effective to do so.	The pilot scheme was established in 2016 and the full scheme in 2018 to provide £320 million in capital match funding to projects.	Consultation on the development of policy to implement the regulation of new and existing heat networks in 2020.	The Government will invest a further £270 million in a new Green Heat Networks Scheme, enabling new and existing heat networks to be low carbon and connect to waste heat
2013	2014	2016	2020+	2022 +

# Heat Network Delivery Unit

## Heat Networks Delivery Unit (HNDU)

- 10 rounds of development funding
- ~£25m in grants
- 50-67% funding available
- Supported 150+ **Local Authorities**
- 250+ projects/ 500+ opportunities

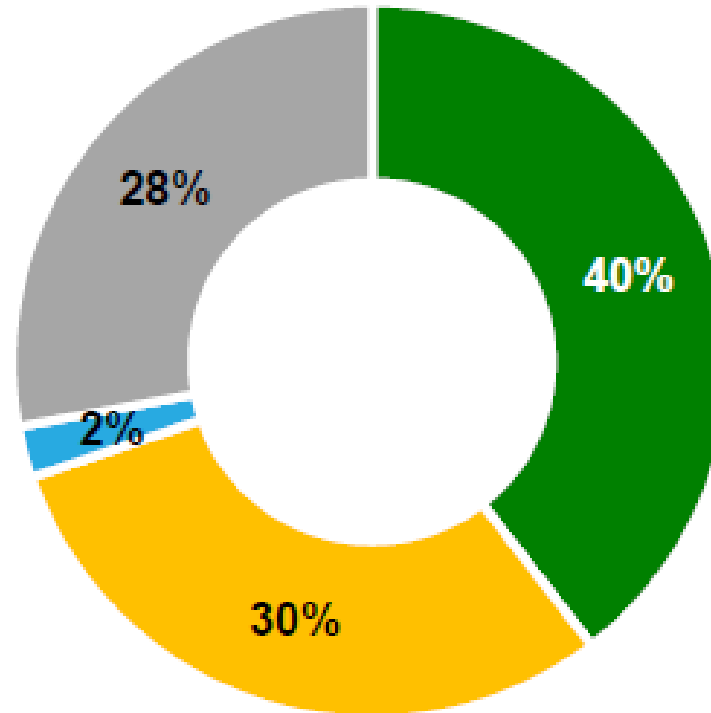




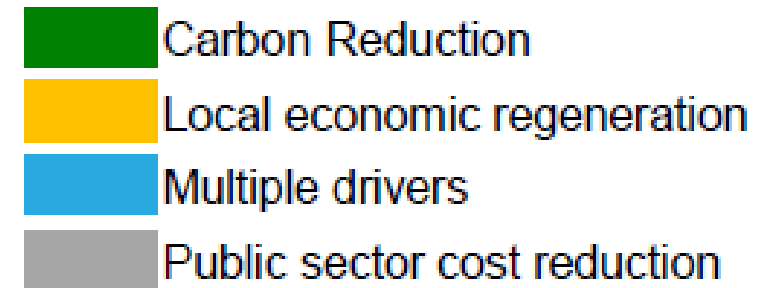
# Local Authorities and Heat Networks

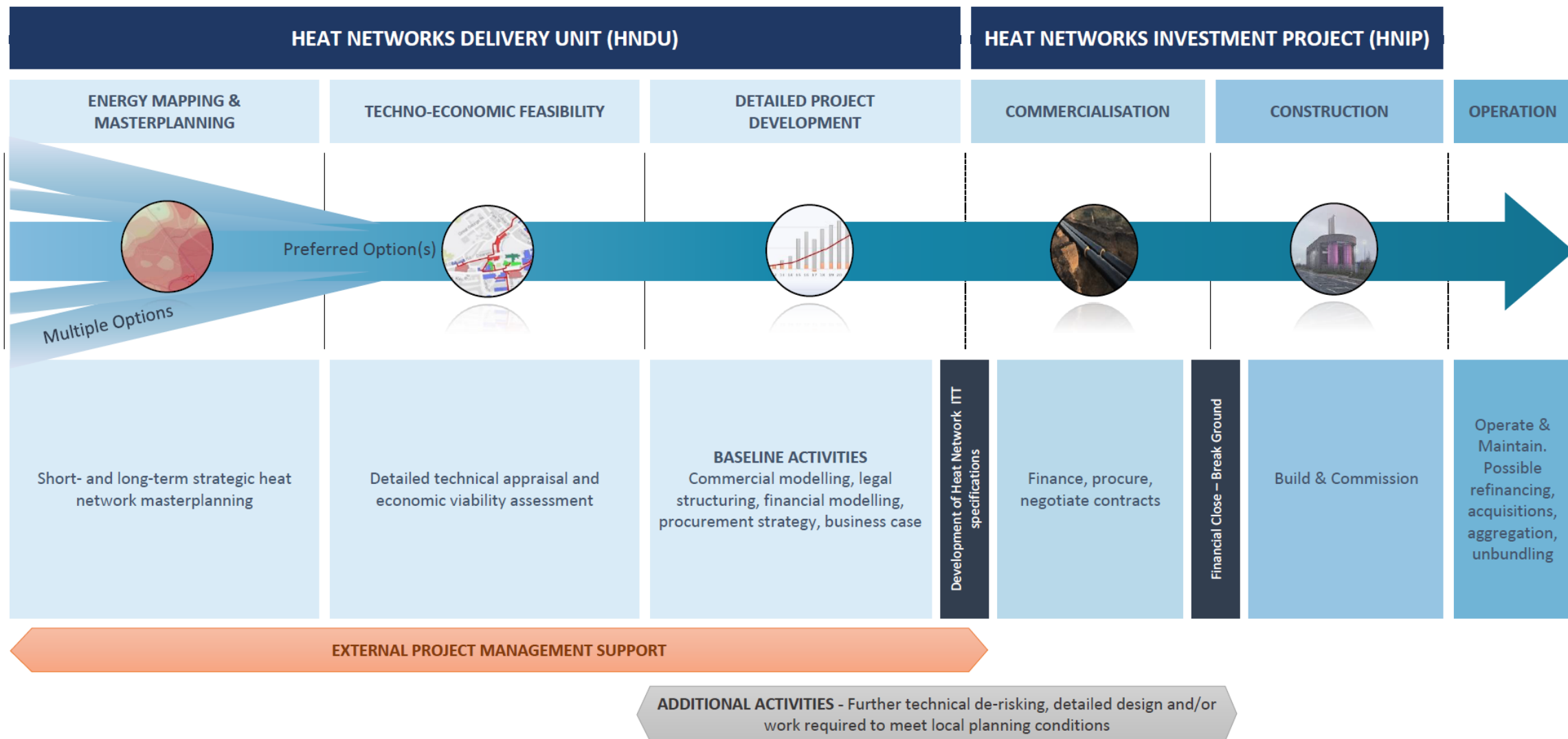
## Enablers:

- Assets
- Stakeholders
- Strategic interests



## Local Drivers:





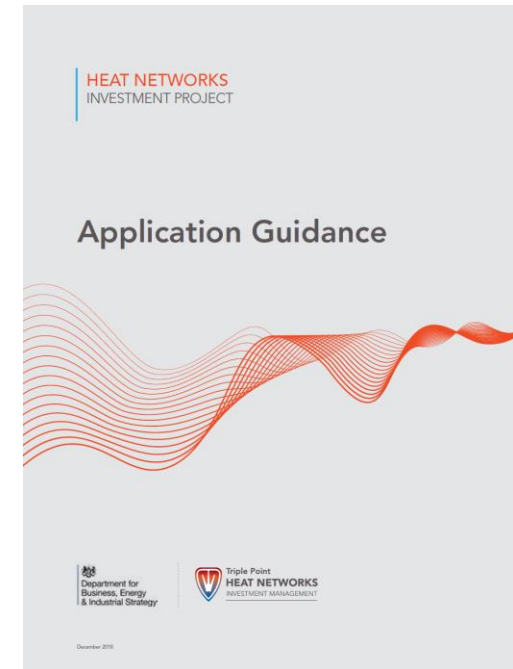
# Heat Networks Investment Project (HNIP)

**What is it?** £320m gap funding to help make capital projects investable. It aims to leverage £1bn private and local investment and fund approximately 100 projects

**Pilot scheme:** run in 2016-17 for public sector, provided £19m of funding for eight projects.

## Main Scheme - launched October 2018

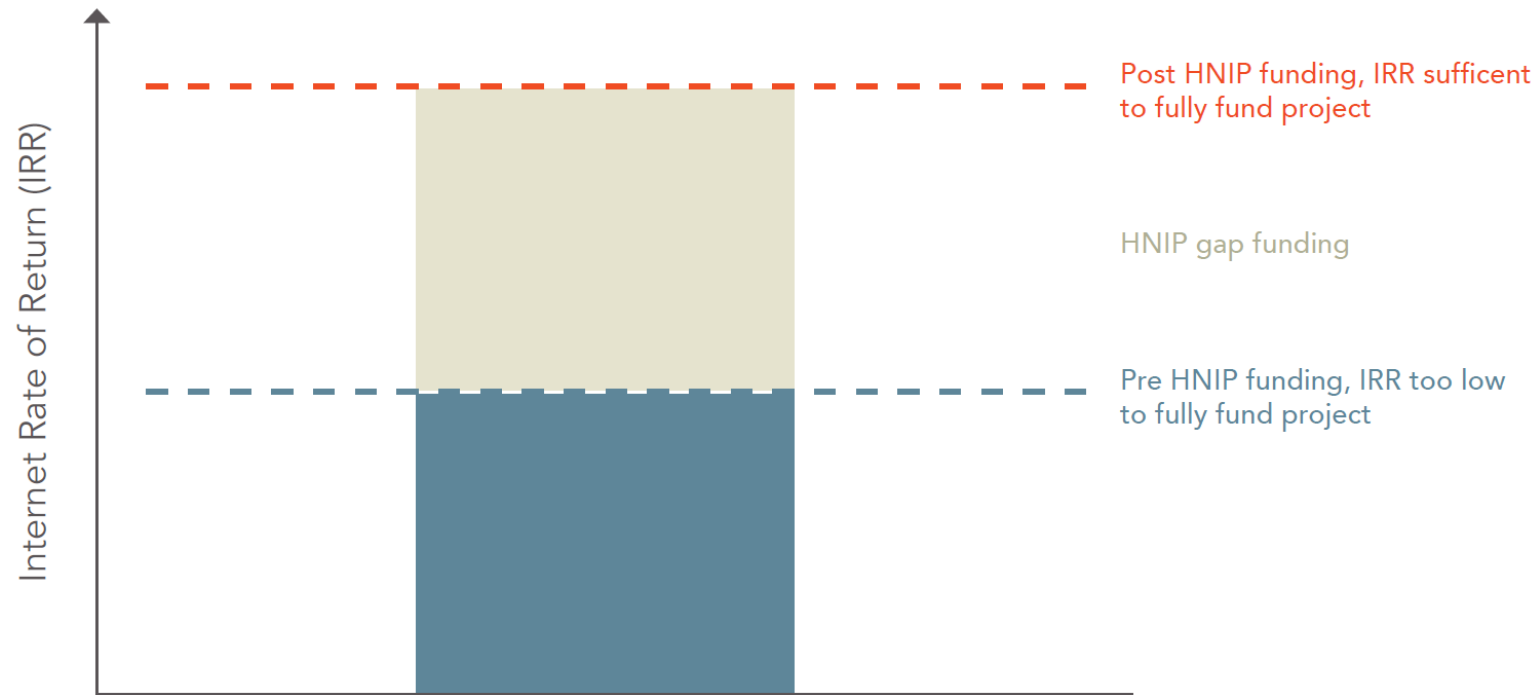
- Applications close March 2022
- Support **strategic low-carbon** heat networks
- Grow the market to improve skills and drive down costs
- Meet local infrastructure and **consumer needs**
- Driving towards the creation of a **self-sustaining** heat network market



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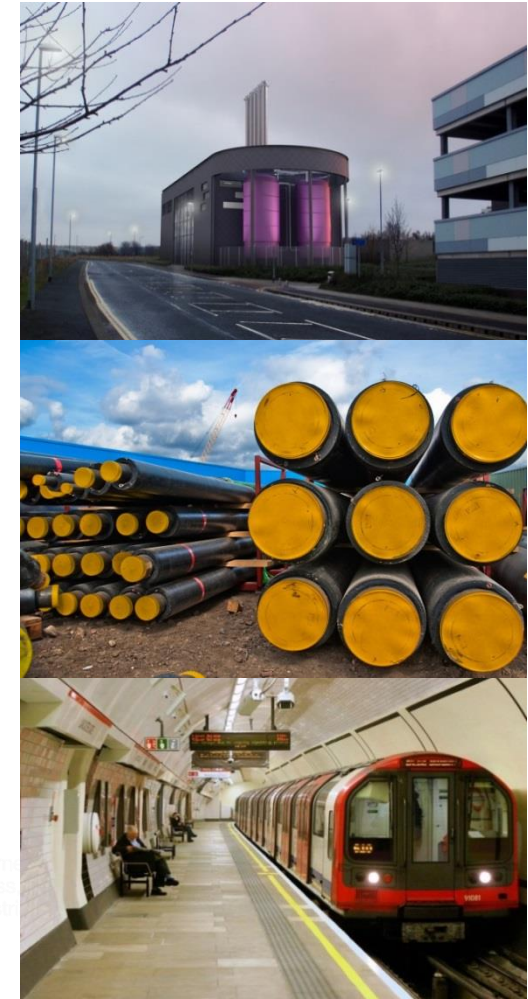
# Heat Networks Investment Project (HNIP)

## Gap Funding...



# Heat Networks Investment Project (HNIP)

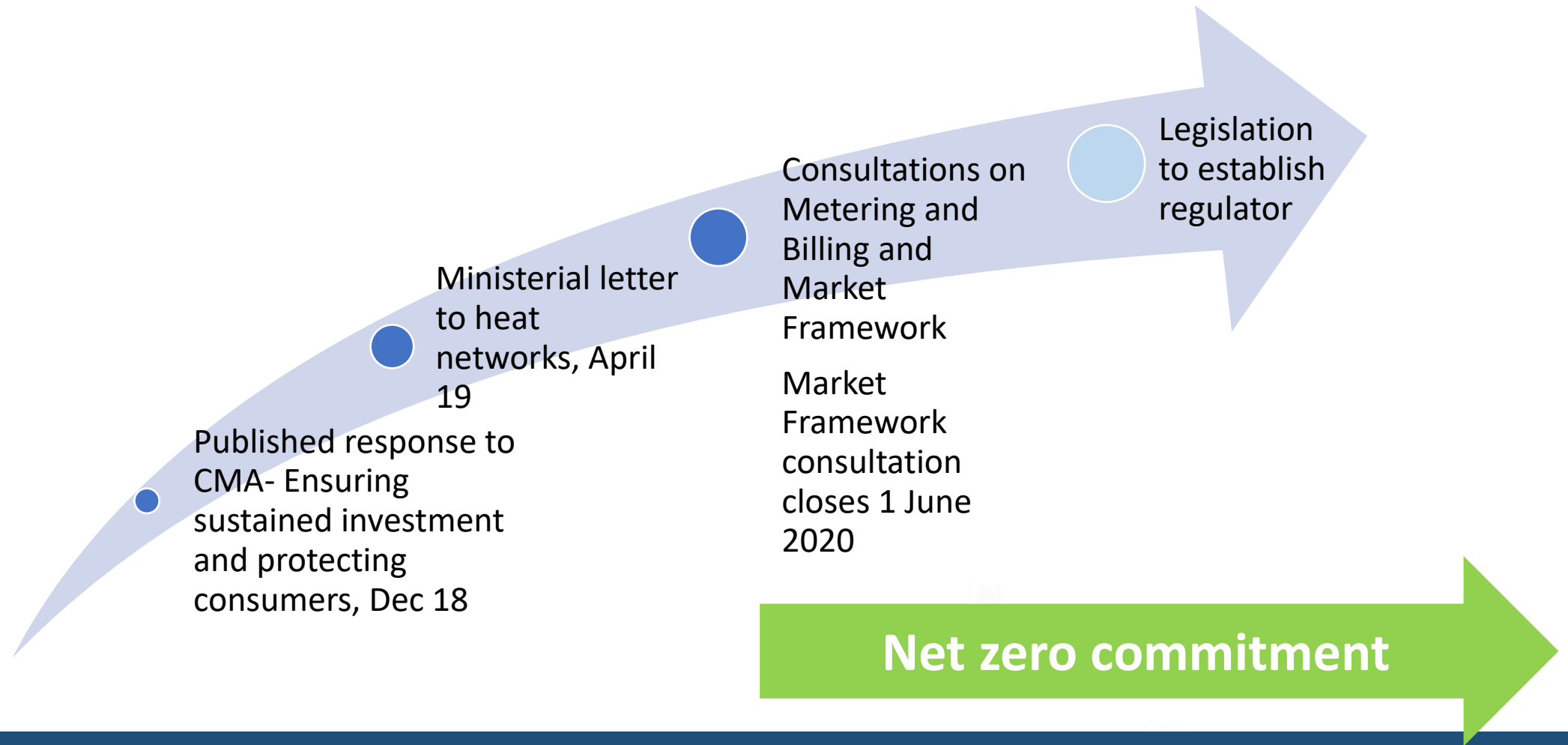
- A mix of **Grants & Loans** will be available
- Funding can cover commercialisation and **construction**, or just construction
- Allocated on a competitive basis – only the best will be funded



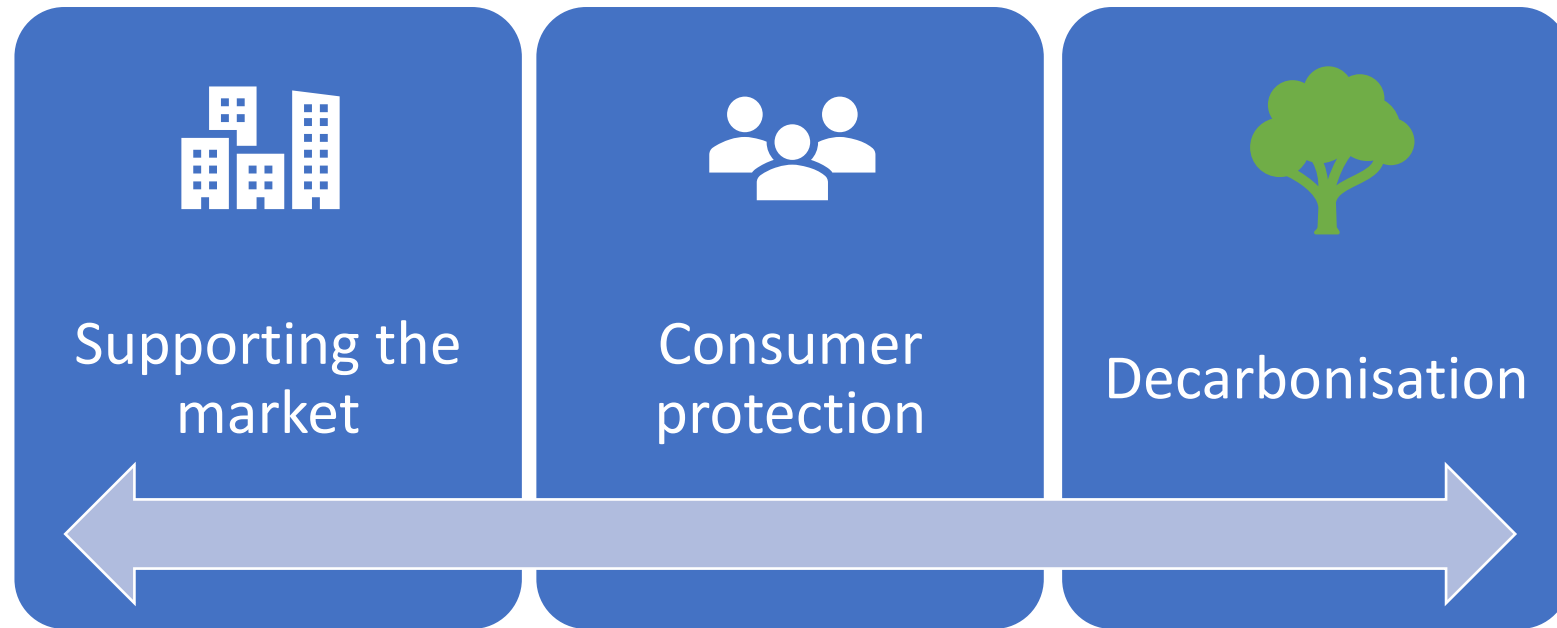
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# Heat Networks Market Framework



# Why are we consulting?



  
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# Supporting Market Growth and Investment

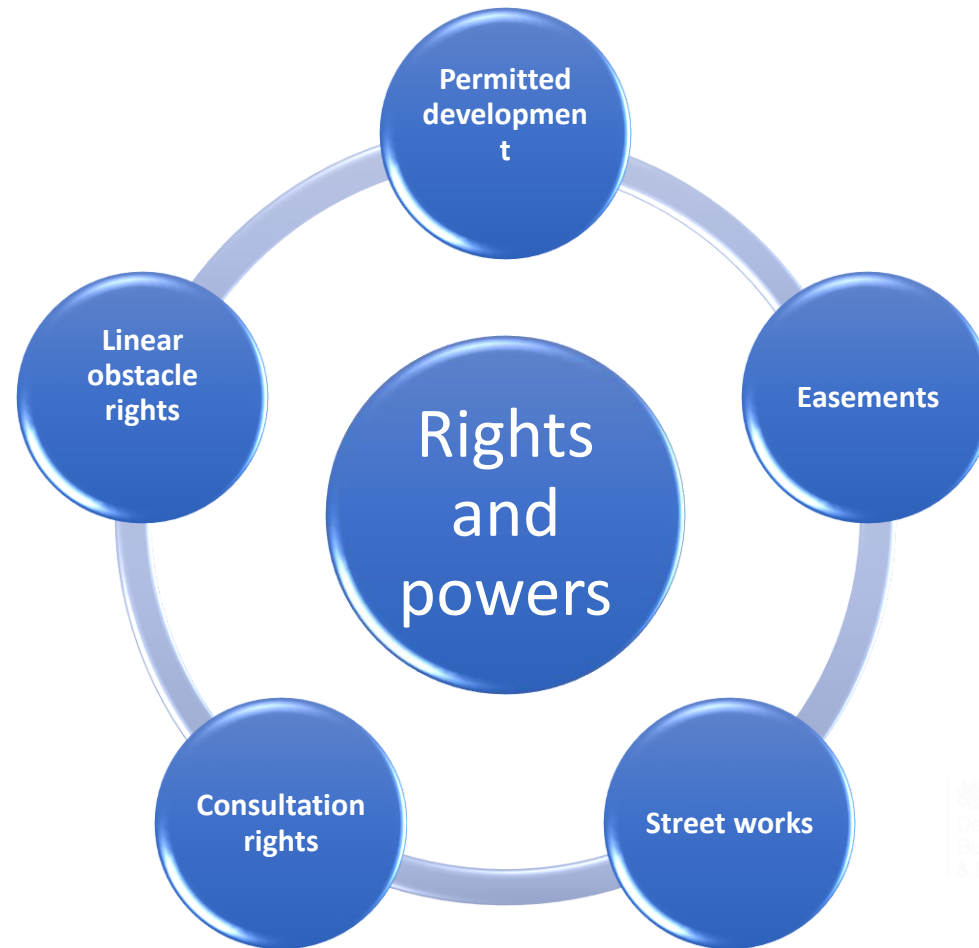
Building HNs' reputation and regulatory certainty

Reducing development burden and risks

Improving investor understanding of costs and returns

Supporting heat networks as local solution

# Rights and Powers



  
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# Consumer Protection

## Transparency

- Requirement to develop information packs containing minimum pre-contractual information
- Requirements on the provision of heat supply agreements or equivalent
- Minimum standards on billing, billing frequency, and back-billing

## Pricing

- Mandatory price transparency
- Powers for Ofgem to investigate prices where they appear to be “disproportionately high”
- Price cap not needed at present, to be kept under review

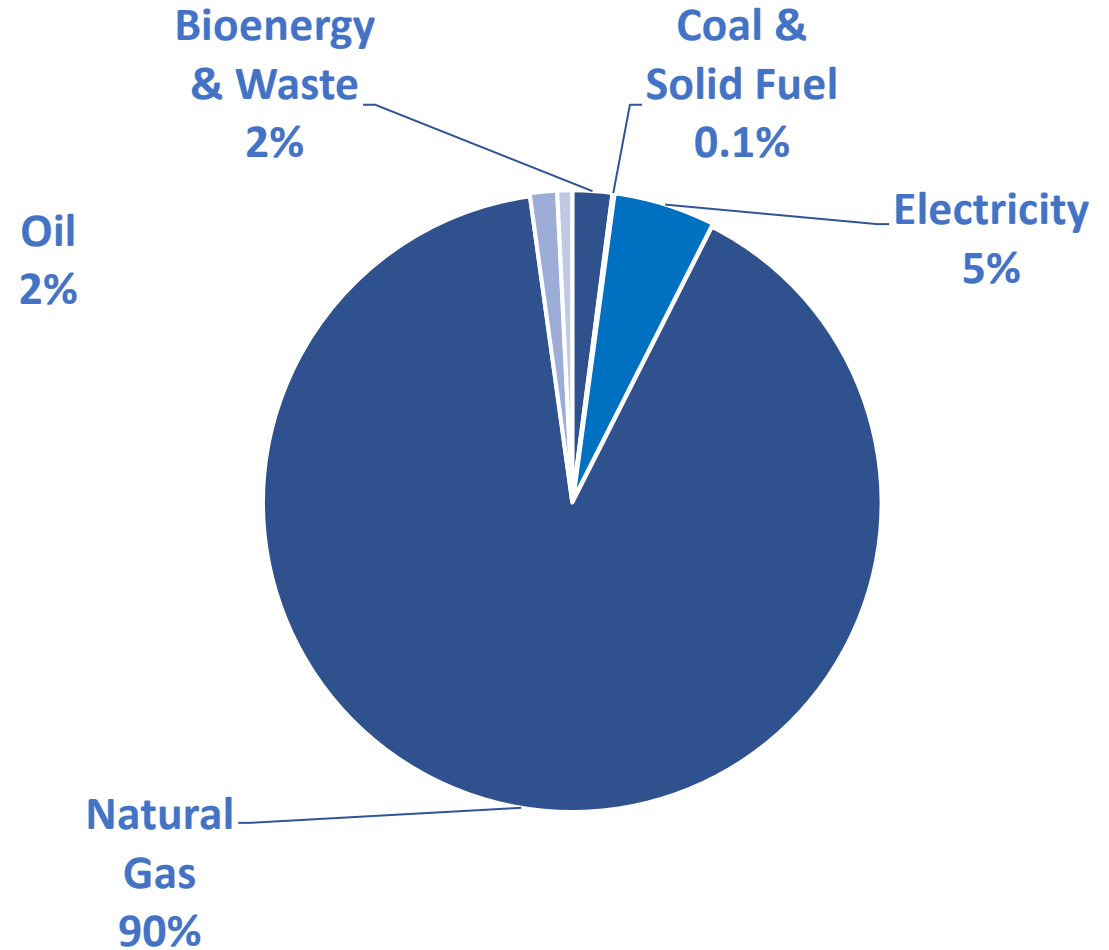
## Quality of service

- Statutory access to independent redress, e.g. Energy Ombudsman
- Ofgem to set outcome-based quality of service standards



# Decarbonisation

## Current Heat Network Fuel Sources



# Industry Initiatives

Various Industry led schemes including:

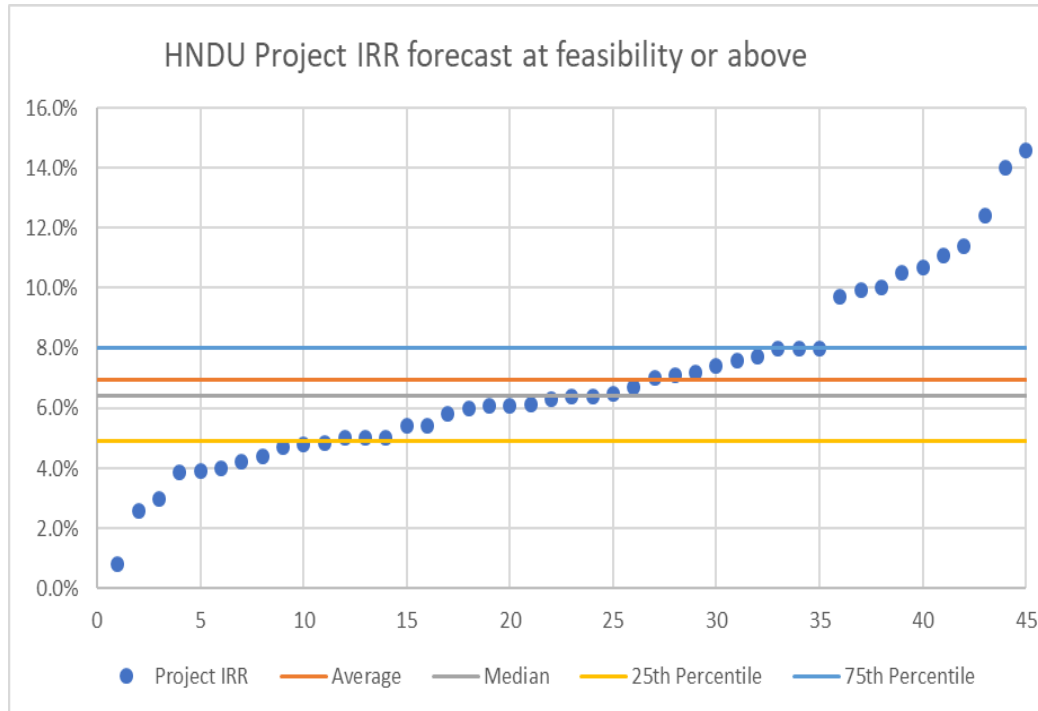
[Association Decentralised Energy](#) - Heat Networks Industry Council; [Heat Trust Scheme](#); [UKDEA](#) - Heat Networks Guide and [CIBSE](#) - Heat Networks Technical Code of Practice.....





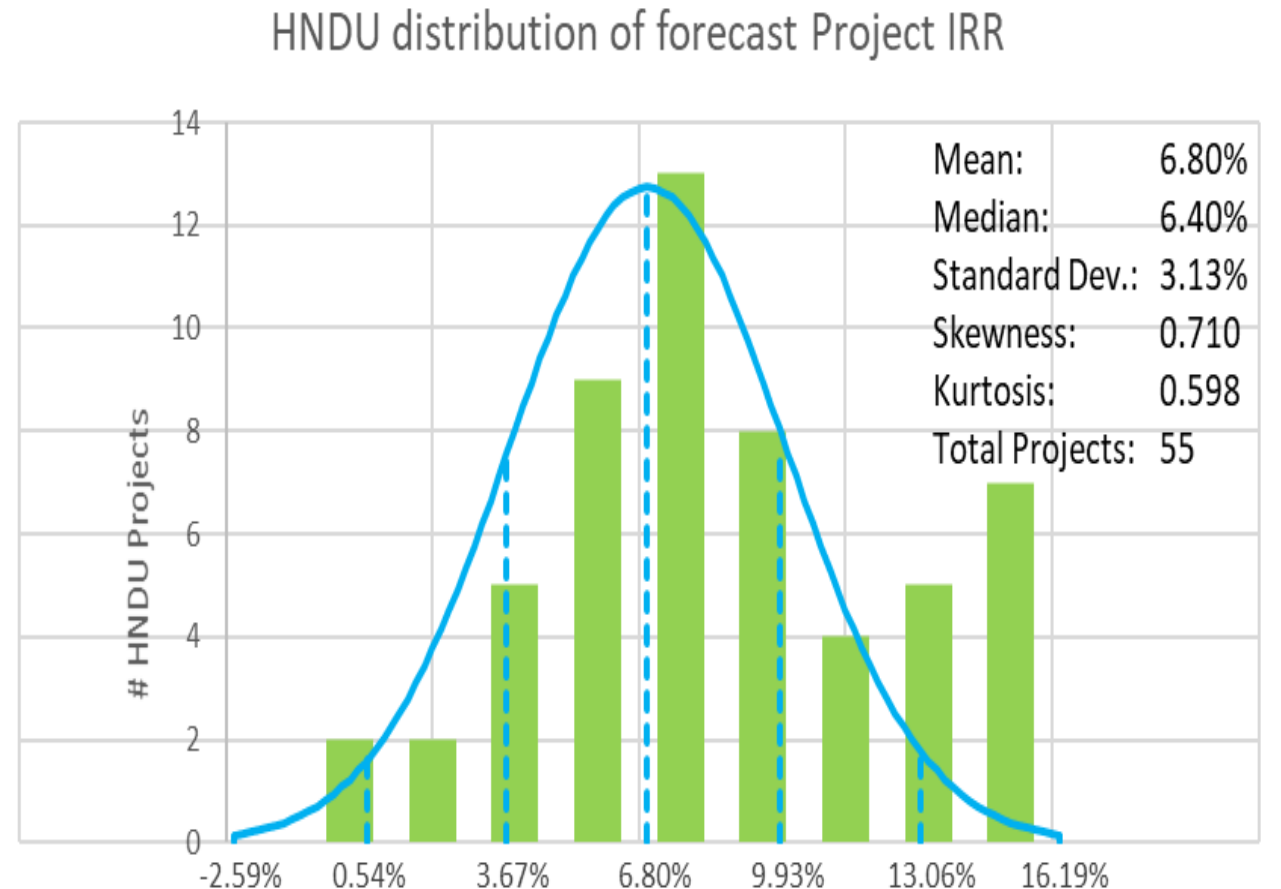
# PROJECT ECONOMICS

# Heat Network Economics



PIRR (40 year pre-tax real) – 45 of HNDU projects :

- Average – 6.8%
- Median – 6.4%
- 75<sup>th</sup> Percentile – 8.0%
- 25<sup>th</sup> Percentile – 4.92%





A close-up photograph of several industrial pipes. The pipes are dark, possibly black, and have yellow flanges. Red caps are placed over the pipe ends. The caps have some text on them, including "11/8\"/>

# Tools & Resources



# Tools and resources for UK Heat Networks

- *Technical*
- [CIBSE/ ADE Heat Networks Code of Practice](#)
- CIBSE Codes of Practice for [Surface Water Source Heat Pumps](#) & [Ground Source Heat Pumps](#)
- [Water Source Heat Map layer](#)
- [Renewable Heat for Heat Networks slide pack](#)
- *Finance & Procurement*
- [Whole Life Cost of Heat Calculator](#)
- [Procuring Finance for Heat Networks](#)
- [Infrastructure finance review: insights for district heat network investment in the UK](#)
- [Financing Heat Networks in the UK guidebook](#)
- [Heat Network Pipeline quarterly publication](#)
- HNDU Procurement templates from LA's (available upon request)
- Procurement Framework options for LA's & the Public Sector (available upon request)

# Tools and resources for UK Heat Networks

## *Legal & Commercial*

- [Heat Trust standard for Heat Networks](#)
- [Standardised Due Diligence Set for Heat Networks](#)
- [Stakeholder Engagement in Heat Networks](#)
- [Heat Networks Electricity Revenues & Licencing Guidance](#)
- [Optimisation of Heat Networks: issues for projects sponsors to consider](#)
- [Assessment of the Costs, Performance and Characteristics of UK Heat Networks](#)
- [Heat Contracts Templates set](#)

## *New tools and resources under development*

- Heat Networks Optimisation Opportunities Study
- Property Developer Pack for Heat Networks
- Solar Thermal Heat Network potential in the UK
- Industrial Waste Heat Sources for Heat Networks in the UK
- Heat Networks Skills Review

# Further information

Enquiries to [hndu@beis.gov.uk](mailto:hndu@beis.gov.uk)

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