Department for Energy Security & Net Zero

UK Heat Networks
Market overview

Opportunities offered by heat networks

The UK is working toward a strong, resilient and zero carbon economy; heat networks offer more opportunities on this journey.

What is a heat network?

Heat networks distribute heat or cooling from centralised sources to a variety of different customers, such as public buildings, shops, offices, hospitals, universities and homes. Whether they are supplying a few neighbouring buildings or entire cities, these highly efficient systems remove the need for individual boilers or heaters in each building connected.

Inherently flexible, heat networks can take advantage of a wide array of different heat sources – including the recovery of low-carbon heat from resources that would otherwise be wasted – such as industry, energy-from-waste plants, or naturally-occurring sources such as geothermal or rivers.

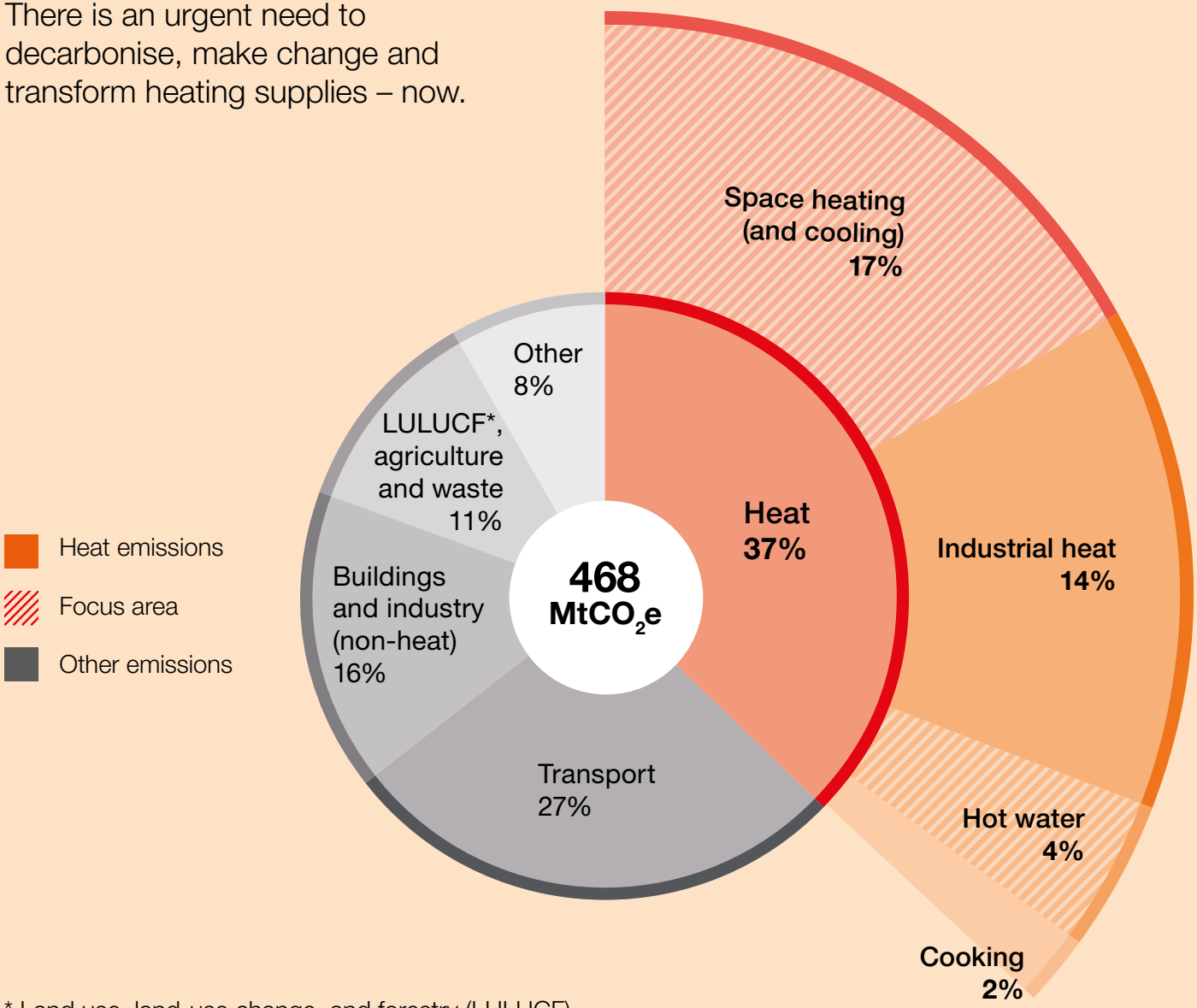
A growing sector

Investing in local heat and energy networks is a vital part of the transition to net zero by 2050. Local authorities have been declaring climate emergencies and looking for ways to decarbonise quickly and at scale. Heat networks can be a cost-effective way to reduce carbon emissions from heating and hot water. And as they expand, their carbon-saving potential increases – also enabling more sources of waste heat to be utilised. The sector needs to further accelerate its growth and this is an opportunity for you to enter an expanding market and help shape the future of UK energy.

Please note that all facts and figures quoted in this brochure were correct at the time of publication (2023).

How big is the opportunity?

Heat in buildings is one of the biggest sources of UK emissions. There is an urgent need to decarbonise, make change and transform heating supplies – now.



* Land use, land-use change, and forestry (LULUCF)

Why get involved in UK heat networks?

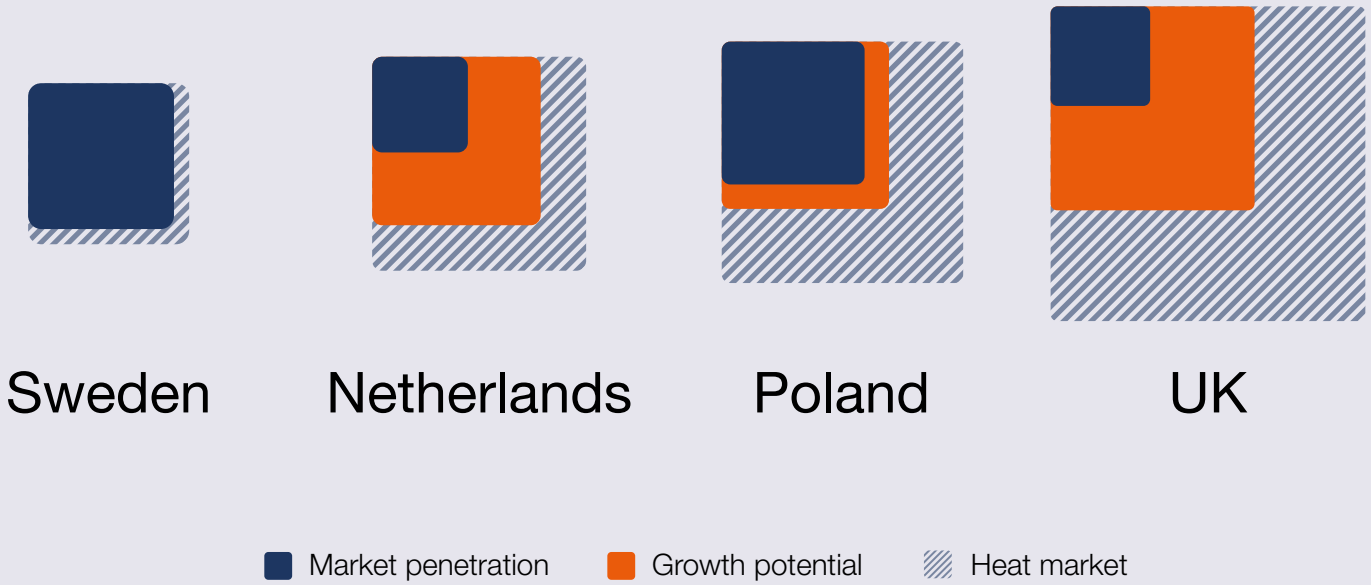
Gas has played a vital role in helping reduce our carbon emissions by 38% since 1990. In our transition to zero carbon it will need to be replaced with low carbon heat across the economy.

The UK consistently tops global rankings as the best place to invest and do business. Heat network investment potential is estimated to be £60 billion to £80 billion by 2050.

The UK government is creating a market framework to protect consumers, encourage low-carbon development, and promote investment. Government is also working with industry to build a competitive and innovative UK market that delivers and sustains jobs, exports and economic benefits.

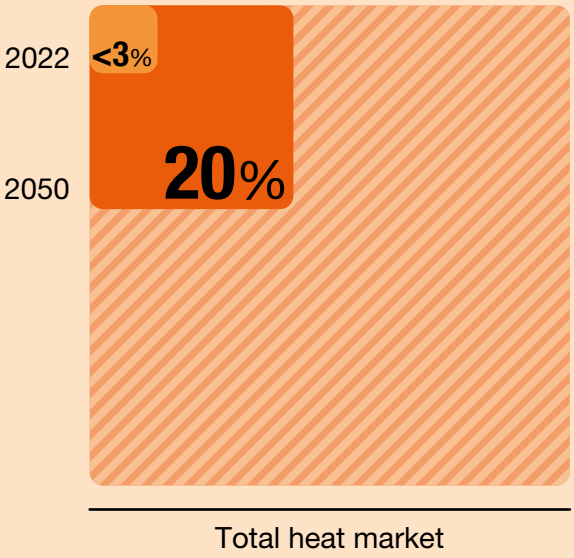
Comparison of heat network capacity growth potential

Estimated growth potential of installed district heating capacity in a Heat Road Map Europe 2050 scenario



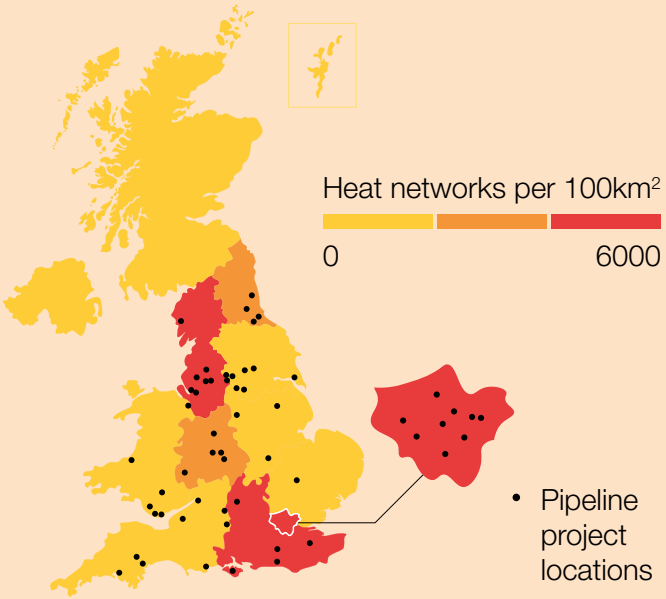
National heat market

Current market share vs future market share (%) in the Climate Change Committee, Net zero scenario



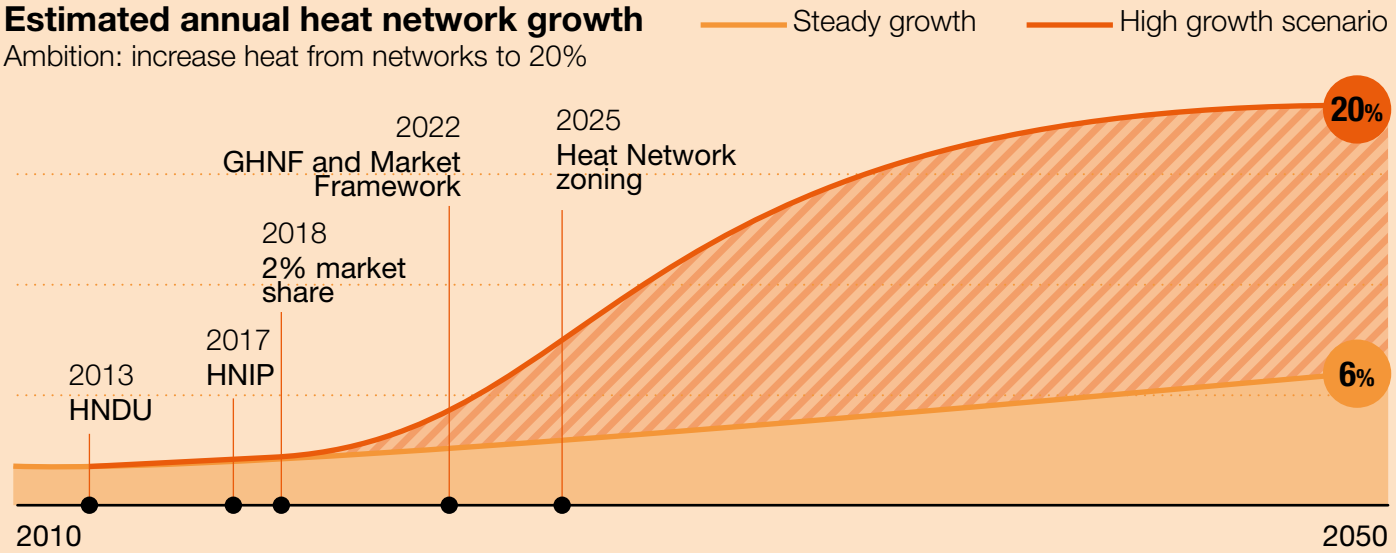
Existing networks and planned projects

Number of heat networks by region and type



Estimated annual heat network growth

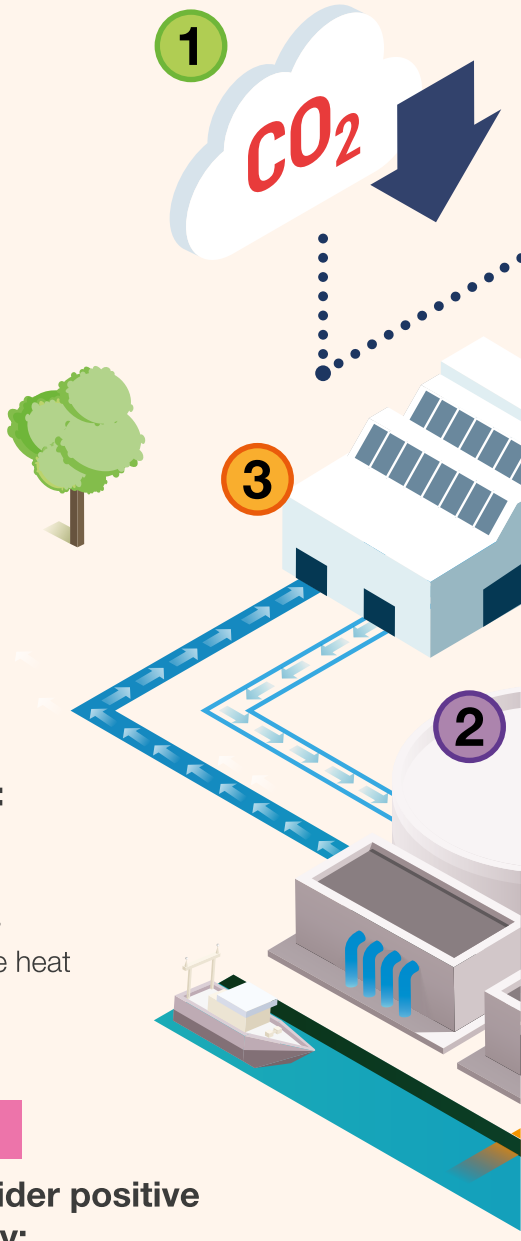
Ambition: increase heat from networks to 20%



HNDU - Heat Networks Delivery Unit | HNIP - Heat Networks Investment Project | GHNF - Green Heat Network Fund

Areas of opportunity

There are opportunities across all areas of heat network growth. From alleviating fuel poverty to zero carbon targets, you can help us move the sector forward.



1 Environment

Drive clean energy innovation towards:

- achieving net zero carbon by 2050
- improving air quality
- increasing resource efficiency

2 Innovation

Lead the way in:

- smart heating
- using big data
- linking into wider energy systems

3 Infrastructure

Play a critical part in:

- constructing large scale, high-value projects
- creating long-term assets
- using industrial and waste heat

4 Finance and investment

Join a growing market with access to:

- government support
- positive return on investment
- future revenue opportunities

5 Society

Create wider positive change by:

- developing local regeneration areas
- creating jobs
- improving health and wellbeing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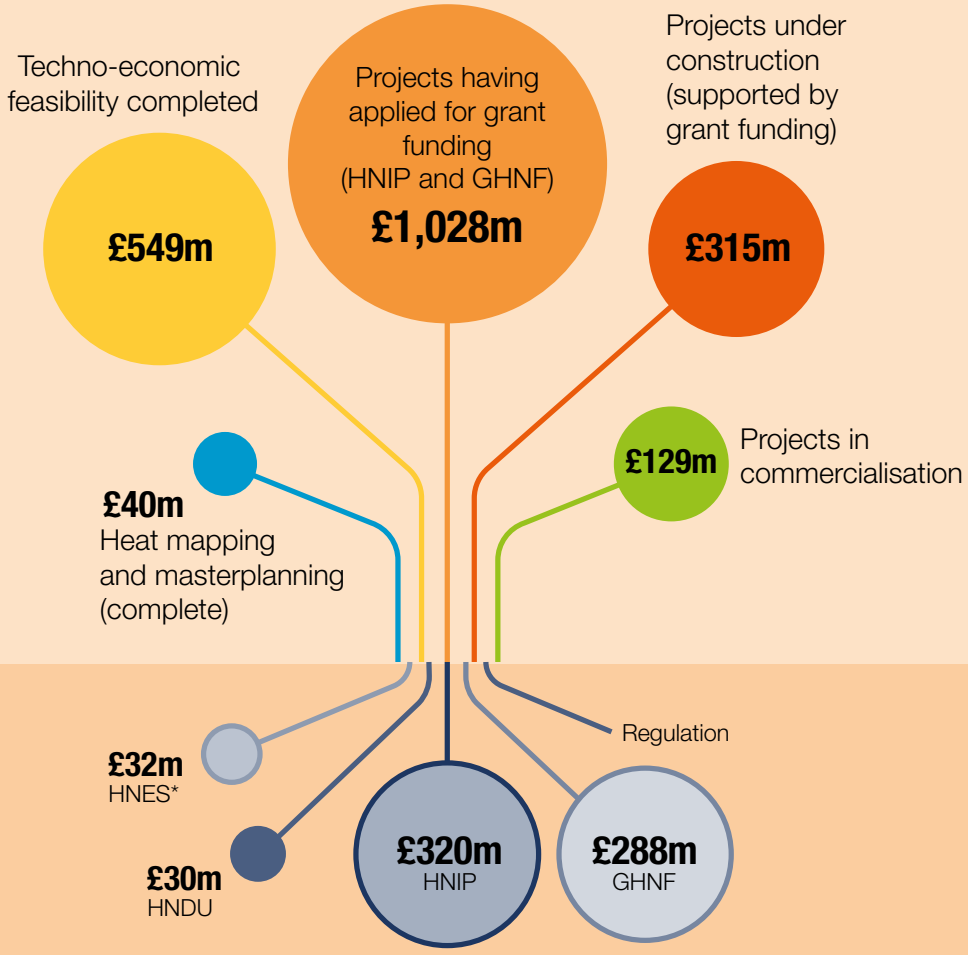
The current picture

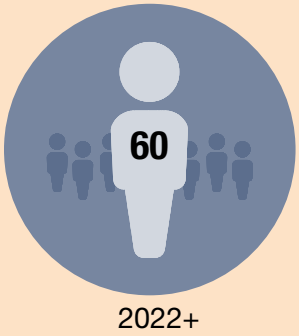
Change is underway: government is supporting heat network market growth with over half a billion pounds in investment.

Near-term investment pipeline of heat network projects and their current stages of development

Total project capex in millions



Growing number of people in government focusing on heat networks



* HNES - Heat Network Efficiency Scheme

Case study of heat networks being built across the UK

Examples of projects that have been developed with the support of HNDU development and HNIP capital support.

Liverpool
Liverpool Waters Heat Network

- £7.6m
- 41GWh
- 4,200t(*)
- 9,000 homes plus commercial space

Bristol
Heat Network

- £22.5m
- 14.9GWh
- 968t
- 19 buildings (mixed use)
  2,080 homes

Gateshead
Gateshead District Energy Scheme

- £8.6m
- 15GWh
- 1,933t
- 13 buildings
  350 homes

London
Meridian Water Heat Network

- £17m
- 122GWh(*)
- 25,000t(*)
- 20 commercial buildings (by 2025)
  10,000 homes (by 2030)

Grant (£) | Heat (GWh / yr) | CO2 (Tn / yr) | Size

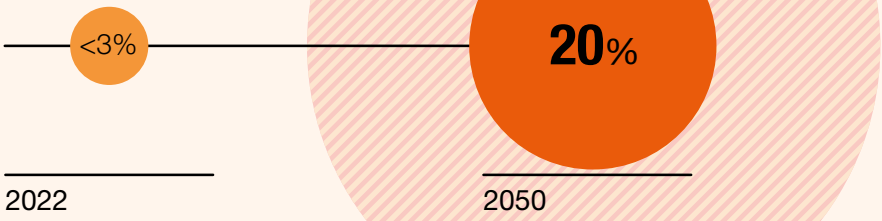
* When completed

The 2050 vision

We are committed to developing a self-sustaining heat market by 2050. Investment, innovation and infrastructure support our vision for the future of the market:

% of heat from heat networks

Relative to existing size of heat market

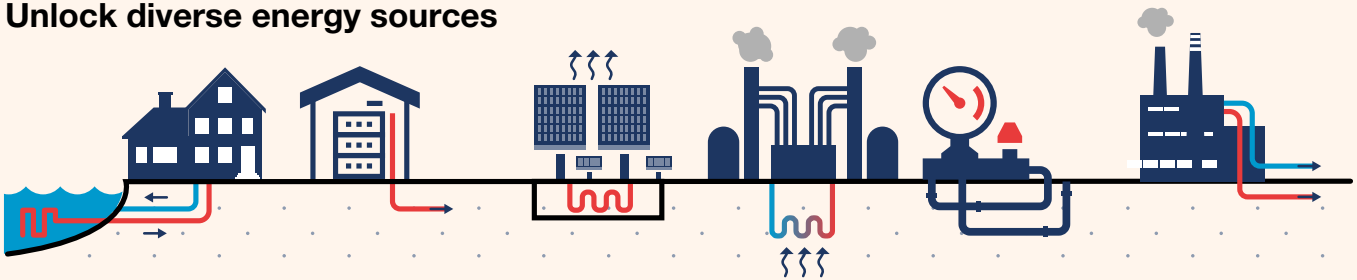


Potential investment(*)

up to

80 billion

Unlock diverse energy sources



Ocean and river source heat pumps

Waste industrial/ commercial heat
e.g. data centres

Solar thermal
Ground mounted with pit storage

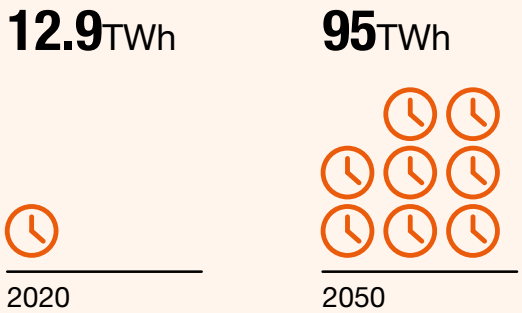
Deep geothermal heat

Large-scale heat pumps

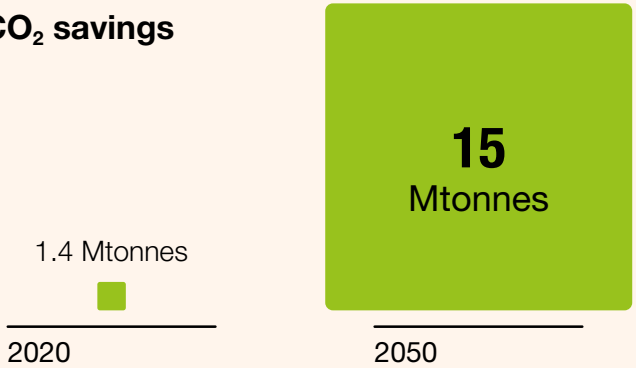
Energy from waste
Heat and electricity from incineration

Supplied terawatt-hours

Estimated increase



Estimated CO_2 savings



(*) Estimated by the Heat Networks Industry Council

Sources

Clean Growth, Transforming Heating, 2018

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Department for Business, Energy and Industrial Strategy, Clean Growth Strategy, 2018

Department for Business, Energy and Industrial Strategy, Energy Trends: Experimental Statistics on Heat Networks, 2018

Department for Business, Energy and Industrial Strategy, Opportunity areas for district heating networks in the UK: second National Comprehensive Assessment, 2021

Element Energy, Research on District Heating and Local Approaches to Heat Decarbonisation, 2015

Heat Networks Project Pipeline: January to March 2020

Heat Roadmap Europe 4, 2018

Institute for Public Policy Research, Piping Hot: The Opportunity for Heat Networks in a New Industrial Strategy, 2017

Are you ready?

Be part of the future of UK energy.

- Decide your role in the UK heat networks market.
- Develop your market offer.
- Get started with DIT support: www.great.gov.uk/international/invest
- Bring your offer to market.

Contact **heatnetworks@energysecurity.gov.uk**

Department for
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Version 1.2 July 2023